ESTES®
A DAMON COMPANY

FLYING MODEL ROCKET CATALOG

INSIDE:
NEW Space Shuttle Columbia
Plus More Than 100 Exciting
Flying Model Rockets . . . . .

NEW!

POWER-PULSE™ LAUNCH CONTROLLER
(Uses NEW Polaroid® Polapulse™ P100 Battery)
No. 821P/CM

CONSUMER CATALOG $1.00

ESTES®
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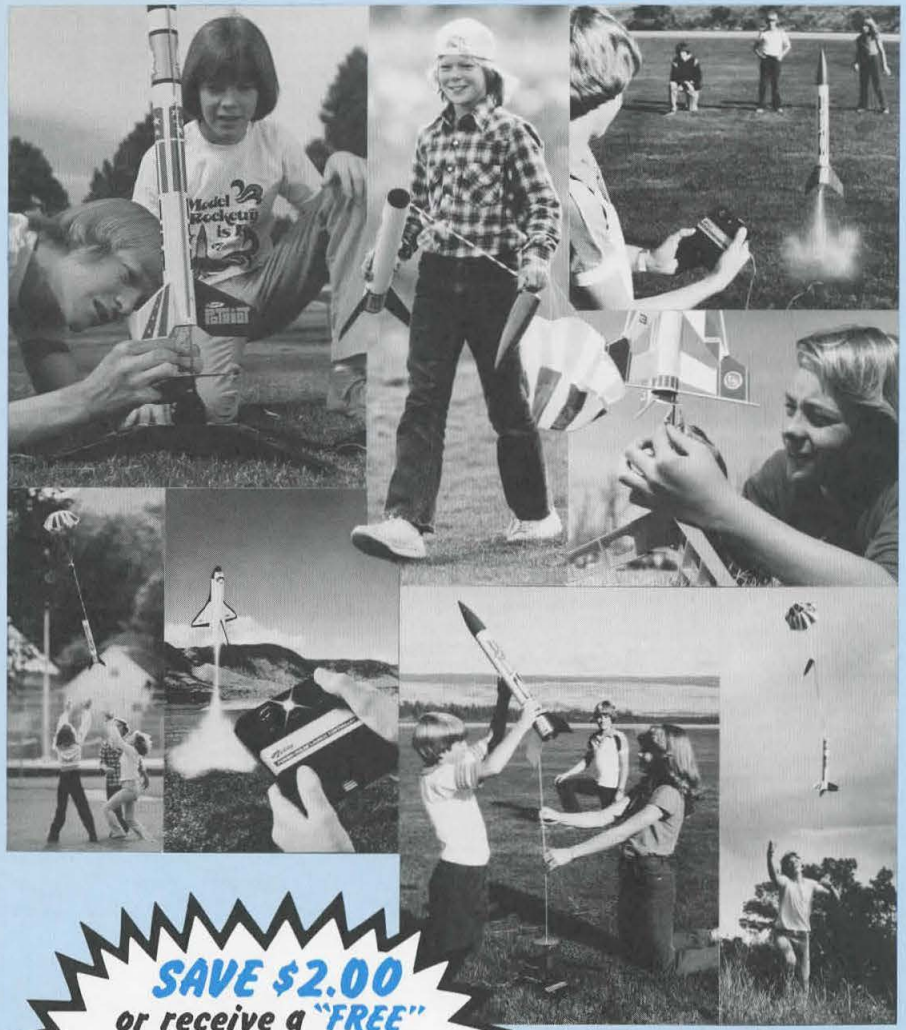
Discover Model Rocketry 1982!

ESTES®
A DAMON COMPANY



SAVE $2.00
or receive a "FREE"
Vigilante

(worth $6.75) with your next order over $17.50
See Super Bonus Coupon on Back

–Photos by
C. Webb
David Brownell

SAVE $1.00 on E.A.C. MEMBERSHIP
See Special Coupon on Back

ESTES. ROCKET ESTES. CLOSE-OUT SALE!

SAVE $2.00
NOW ONLY $3.00

F-61 STAR FIGHTER

Skill Level 2

Futuristic design with simulated air-to-air missiles, laser cannons, and infra-red photon torpedoes.
Length: 18.75" (47.6 cm)
ENGINES: A8-3, B4-2, B4-4 (1st Flt.), B6-2, B6-4, B8-5, C5-3, C6-3, C6-5
No. 9060 . . . . Reg. ~~$5.00~~

SAVE $3.00
NOW ONLY $5.50

SPACE TRANSPORTER AMERICA

Skill Level 3

Scale-like model of America's future "single-stage-to-orbit" vehicle. Delivers really impressive flights.
Length: 21.75" (55.3 cm)
ENGINES: B4-2, B6-4 (lst Flt.), C6-5
No. 9064 . . . . Reg. ~~$9.50~~

SAVE $3.25
NOW ONLY $5.75

SOLAR SAILER

Skill Level 3

Really long, deep space exploration craft featuring giant 24" silver mylar solar sail 'chute.
Length: 39" (100 cm)
ENGINES: B4-2, B4-4, B6-2, B6-4 (lst Flt.), B8-5, B8-7, C6-5
No. 9066 . . . . Reg. ~~$9.00~~

SAVE $2.00
NOW ONLY $3.50

mini BOMARC

Skill Level 3

Scale model of famous surface-to-air interceptor missile with authentic Canadian Air Force decor. Ship. Wt. 5 oz.
Length: 11.75" (29.9 cm)
ENGINES: 1/2A3-2T (lst Flt.), A3-4T, A10-3T
No. 9065 . . . . Reg. ~~$5.50~~

SAVE $3.00
NOW ONLY $5.50

PATROL CRUISER EXCALIBUR "The Good Guy"

Skill Level 3

Sleek and powerful, the Excalibur is the pride of the Intergalactic Patrol. This heroic spaceship delivers really spectacular flights.
Length: 20.125" (51.1 cm)
ENGINES: A8-3, B4-4 (lst Flt.), B6-4, C5-3, C6-3
No. 9063 . . . . Reg. ~~$8.50~~

SAVE $2.75
NOW ONLY $4.75

WORLD FEDERATION STAR PROBE

Skill Level 3

Engineer's conception of deep space exploratory craft utilizing advanced "Loop-Fin" stabilization.
Length: 31" (78.7 cm)
ENGINES: A8-3, B4-2, B4-4, B6-2, B6-4 (lst Flt.), B8-5, C6-5, C6-7
No. 9061 . . . . Reg. ~~$7.50~~

SAVE $2.25
NOW ONLY $3.50

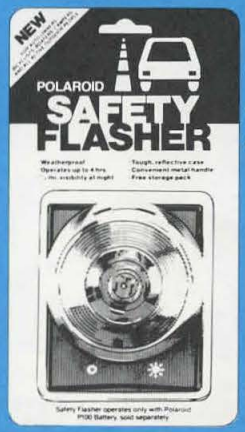
apogee II

Skill Level 3

Ultimate in 2-stage performance and reliability with see-through payload section. Pat. No. 3,292,302. (Decals not included.)
Length: 14.7" (37.4 cm)
ENGINES: UPPER STAGE 1/2A6-4 (lst Flt.), A8-5, B4-6, B6-6, B8-7, C6-7 BOOSTER 1/2A6-0 (lst Flt.), A8-0, B6-0, B8-0, C6-0
No. 9062 . . . . Reg. ~~$5.75~~

Engines, Launch System, Glue, and Finishing Supplies not included.

Avg. Ship. Wt. 10 oz.



NEW POLAROID® Safety Flasher

4-HOUR FLASHING LIGHT ALERTS OTHERS UP TO 1 MILE AT NIGHT. PERFECT FOR BICYCLISTS, CAMPERS, AND HIKERS.

Safety Flasher sends out a bright beacon of flashing light that others can see up to 1 mile away. And it lasts for 4 hours on a single, wafer-thin Polaroid Polapulse battery.

Safety Flasher has a tough, weather-resistant, reflective case that makes it ideal for motorists, bicyclists, campers, hikers, and all active outdoor people. You can set it on a flat surface or hang it—Safety Flasher's convenient metal handle adjusts to either position. A unique, flat design and 4-ounce weight make the unit easy to carry and handy to store. Requires one Polaroid® Pola Pulse™ P100 battery (#2211) - Not Included. See outside back cover of 1982 Estes catalog.

No. 9010 . . . . . Only $3.95

ESTES®

A DAMON COMPANY

FLYING MODEL ROCKET CATALOG

INSIDE:
NEW Space Shuttle Columbia
Plus More Than 100 Exciting
Flying Model Rockets . . . . .

NEW!

POWER-PULSE™ LAUNCH CONTROLLER
(Uses NEW Polaroid® Polapulse™ P100 Battery)
No. 821P

CONSUMER CATALOG
$1.00

SPACE SHUTTLE COLUMBIA

Flying Model Rocket Starter Outfit

—NASA Photo

NEW!

SKILL LEVEL 2
Recommended for individuals with some model building experience.

FEATURES:

Space Shuttle Columbia Kit. Our newest model of the Columbia orbiter, this semi-scale kit assembles easily with plastic nose cone and orbital maneuvering system pods. Quick-release engine mount, die-cut balsa fins, realistic kit decal and 18" recovery parachute make building and flying fun. The Columbia is capable of flights over 500 feet with slow-realistic lift-offs.

Launch Control System. Includes launch pad and blast deflector plate with 1/8" x 36" two-piece launch rod. Futuristic, hand-held launch controller features arming light, safety key and ignition button plus launch cable with micro-clips.

Flight Pack. Contains three high performance Model Rocket Engines plus Solar Igniters and Parachute Recovery Wadding for your first series of Shuttle lift-offs.

Special Bonus. The Mini Alpha Book of Model Rocketry is also included.

Engines: A8-3 (1st Flt.), B4-4, B6-4, B8-5, C6-5

Ship. Wt. 1 lb.

No. 1424 ..... Only $17.95

(Requires 6 or 12 volt lantern battery, white glue, plastic cement, paint, and finishing supplies – Not Included)

THE SPACE SHUTTLE, TECHNOLOGY, AND MODEL ROCKETRY

1982 will be a revolutionary year, both for NASA and for Estes model rocketeers. The Space Shuttle should complete its final series of flight test missions, changing the way America works in space forever. As we begin to look towards monthly shuttle flights by the mid 1980's, our excitement and enthusiasm increases for the capability and potential of this incredible space vehicle.

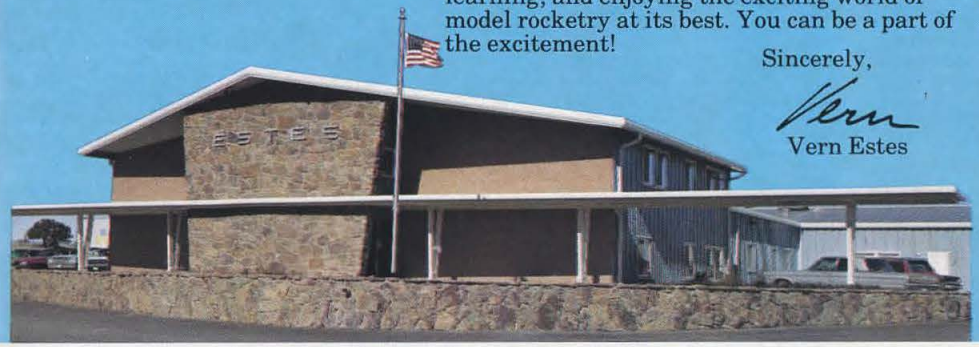
As technology continues to shrink our world and expand our universe, both NASA and Estes design, develop, and redesign systems to keep up with technological advancements. Estes is proud to introduce more than 22 new "state-of-the-art" products for 1982.

As we progress with our exploration of space and discovery of new technologies, there is always something new to learn. Join with me again this year in discovering, learning, and enjoying the exciting world of model rocketry at its best. You can be a part of the excitement!

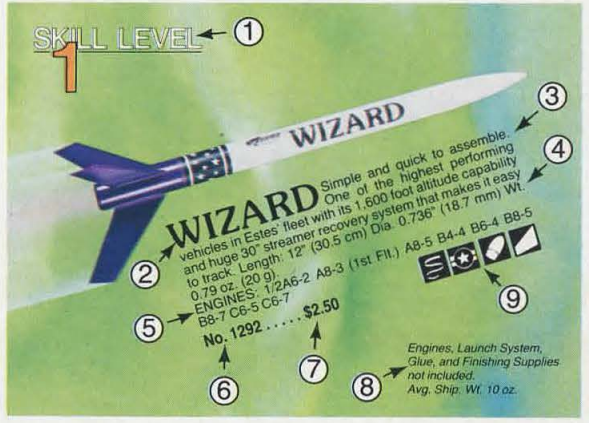
Sincerely,

Vern

Vern Estes



Here's How To Use Your Estes Catalog.

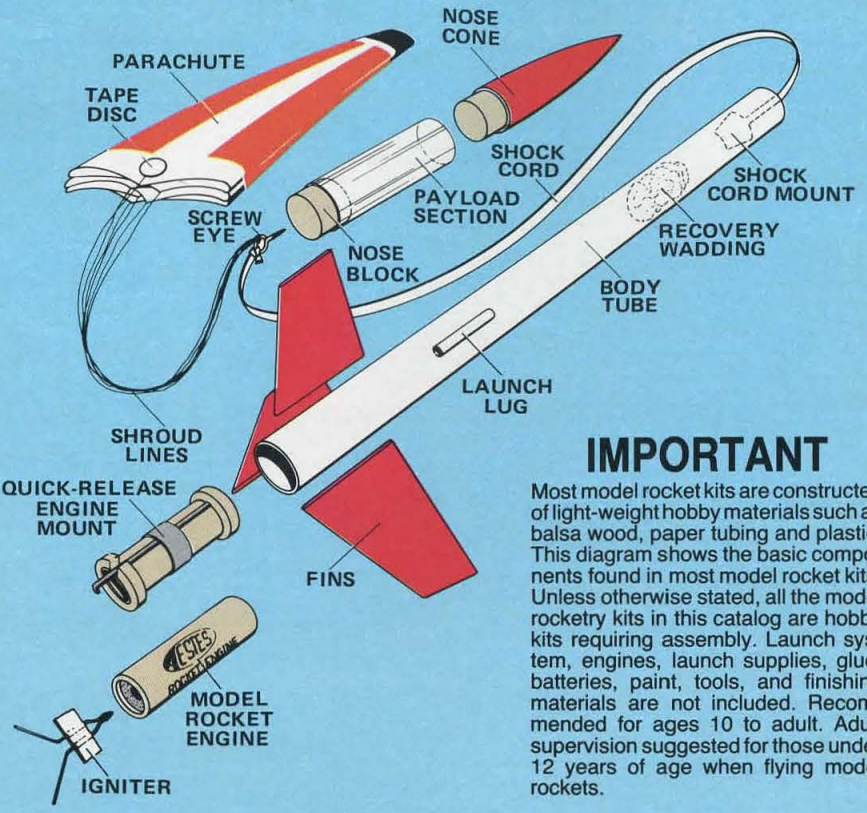

SKILL LEVEL 1
1
WIZARD
3
4
WIZARD
Simple and quick to assemble. One of the highest performing vehicles in Estes' fleet with its 1,600 foot altitude capability and huge 30" streamer recovery system that makes it easy to track. Length: 12" (30.5 cm) Dia. 0.736" (18.7 mm) Wt. 0.79 oz. (20 g)
ENGINES: 1/2A6-2 A8-3 (1st Flt.) A8-5 B4-4 B6-4 B8-5 B8-7 C6-5 C6-5
2
9
5
No. 1292 ..... $2.50
7
6
8
Engines, Launch System, Glue, and Finishing Supplies not included.
Avg. Ship. Wt. 10 oz.

1. Skill Level number recommends the general skill level and experience necessary for a rocketeer to successfully complete the kit. Skill Level 1 kits are suggested for beginners, Skill Level 2 for intermediate rocketeers, and so on to Skill Level 5, Expert Rocketeer. All kits in this catalog are grouped by Skill Level.
2. Name of the kit.
3. Special features and additional kit information.
4. Specifications including length, diameter, and weight, in both English and Metric Equivalents.
5. Engine Types lists all recommended engines for flying the rocket. Engines are listed from least powerful to most powerful. Also, indicates which engine should be used for the first flight.
6. Product number for kit which should always be used when ordering.
7. Price of the kit. (Or see Price List.)
8. Average Shipping Weight for these models.
9. Kit Feature Symbols indicate the following kit features:

- 12 Parachute & Size
- Quick-Release Engine Mount
- Kit Decals
- Plastic Nose Cone
- Die-Cut Balsa Fins or Paper Parts
- Balsa Nose Cone
- Streamer Recovery
- Plastic Fins or Fin Unit

All prices in this catalog are subject to change without notice.

Parts of a Model Rocket



IMPORTANT

Most model rocket kits are constructed of light-weight hobby materials such as balsa wood, paper tubing and plastic. This diagram shows the basic components found in most model rocket kits. Unless otherwise stated, all the model rocketry kits in this catalog are hobby kits requiring assembly. Launch system, engines, launch supplies, glue, batteries, paint, tools, and finishing materials are not included. Recommended for ages 10 to adult. Adult supervision suggested for those under 12 years of age when flying model rockets.

Skill Levels

SKILL LEVEL 1 — **Very Simple – Recommended for beginners.**

SKILL LEVEL 2 — **Fairly Easy – Recommended for individuals with some model building experience.**

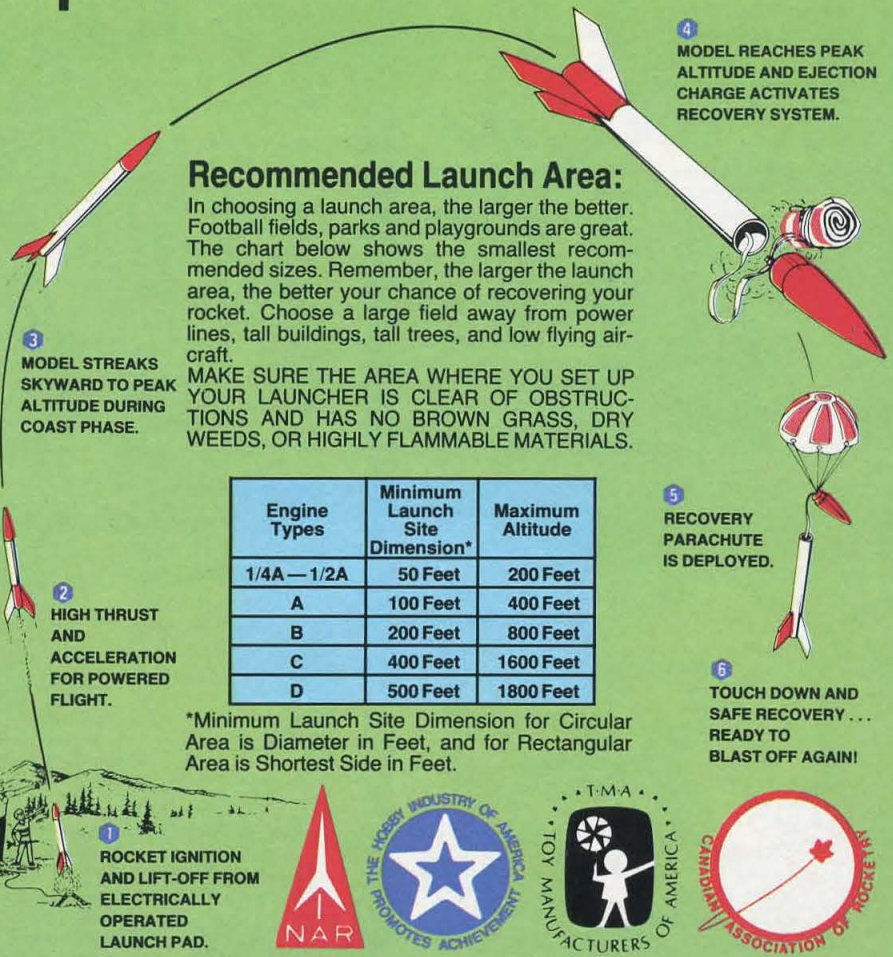
SKILL LEVEL 3 — **Average Challenge – Recommended for the experienced model builder.**

SKILL LEVEL 4 — **Very Challenging – Recommended for the advanced model builder.**

SKILL LEVEL 5 — **Extremely Challenging – Recommended for the expert model builder.**

All model rocket kits in this catalog require assembly unless otherwise stated. Some of these flying model rockets can be put together and ready to launch in minutes. Others with their sophisticated aerodynamics and wealth of detail are more challenging. The Skill Level numbers given on each page recommend the skills and experience necessary for a rocketeer to successfully complete the kits listed. Generally speaking, it is not wise to jump skill levels. Unless you are an extremely experienced modeler, you should complete a kit of Skill Level 1 before attempting Skill Level 2 . . . and you should build a Skill Level 2 rocket before moving on to Skill Level 3 . . . and so on.

Model Rocket Flight Sequence


4 MODEL REACHES PEAK ALTITUDE AND EJECTION CHARGE ACTIVATES RECOVERY SYSTEM.
3 MODEL STREAKS SKYWARD TO PEAK ALTITUDE DURING COAST PHASE.
5 RECOVERY PARACHUTE IS DEPLOYED.
2 HIGH THRUST AND ACCELERATION FOR POWERED FLIGHT.
6 TOUCH DOWN AND SAFE RECOVERY . . . READY TO BLAST OFF AGAIN!
1 ROCKET IGNITION AND LIFT-OFF FROM ELECTRICALLY OPERATED LAUNCH PAD.

Recommended Launch Area:

In choosing a launch area, the larger the better. Football fields, parks and playgrounds are great. The chart below shows the smallest recommended sizes. Remember, the larger the launch area, the better your chance of recovering your rocket. Choose a large field away from power lines, tall buildings, tall trees, and low flying aircraft.

MAKE SURE THE AREA WHERE YOU SET UP YOUR LAUNCHER IS CLEAR OF OBSTRUCTIONS AND HAS NO BROWN GRASS, DRY WEEDS, OR HIGHLY FLAMMABLE MATERIALS.

Engine Types	Minimum Launch Site Dimension*	Maximum Altitude
1/4A—1/2A	50 Feet	200 Feet
A	100 Feet	400 Feet
B	200 Feet	800 Feet
C	400 Feet	1600 Feet
D	500 Feet	1800 Feet

*Minimum Launch Site Dimension for Circular Area is Diameter in Feet, and for Rectangular Area is Shortest Side in Feet.

Model Rocketry Is An Internationally Recognized Hobby With A Safety Record Of More Than 190 Million Successful Model Rocket Launchings.

Estes Model Rocket Engines Are Safety Tested And Contest Certified By:
- U.S. National Association of Rocketry
- Canadian Association of Rocketry

Estes Model Rocket Engines Have Been Tested And Approved By:
- United States Department of Transportation
- Truesdail Laboratories, Inc.
- Canadian Department of Energy, Mines, and Resources
- Government of West Germany

Estes Model Rocketry Products Meet The Standards And Requirements Established By:
- National Fire Protection Association
- U.S. Consumer Product Safety Commission
- U.S. Food & Drug Administration
- U.S. Department of Transportation
- Federal Aviation Administration
- U.S. Postal Service
- United Parcel Service
- American Insurance Association
- International Air Transport Association
- Inter-Governmental Maritime Consultative Organization
- Air Line Pilots Association

Model Rocketry Is Endorsed As A Safe And Rewarding Hobby By:
- Cub Scouts of America
- Boy Scouts of America
- YMCAs
- National 4-H Clubs
- Civil Air Patrol
- NASA
- United States Air Force
- U.S.A.F.-J.R.O.T.C. Programs
- 15,000 Elementary, Jr. High, and High Schools
- Major Colleges and Universities
- Hundreds of Camp and Recreation Programs

Challenger-1

Flying Model Rocketry Starter Kit

SKILL LEVEL 1 Recommended for Beginners

This high performance Challenger-1 rocket is very easy-to-assemble with bright orange plastic nose cone and fin-unit. Features quick-finish decor with pre-colored body tube and realistic roll pattern decals. No painting required! The Challenger-1 rocket can be launched over and over again and can attain altitudes over 1,000 feet! Returns via 12" recovery parachute. You need only replace the rocket engine, igniter, and recovery wadding for each new flight. Challenger-1 Launch Control System features futuristically designed hand-held launch controller with arming lamp, safety key, launch button, and 15 feet of launch cable with micro-clips. Plus sleekly designed launch pad wtih blast deflector plate and 1/8" x 36" two-piece launch rod. Entire system sets up quickly for launch and disassembles easily for compact storage.

Flight Pak includes three N.A.R. safety certified model rocket engines, parachute recovery wadding, and high reliability Solar Igniters for three exciting flights.

Special Bonus—New "Beginner's Tech Manual" filled with model rocketry data to get you started off right.

Ship. Wt. 1 lb.

ENGINES: 1/2A6-2
A8-3 (1st Flt.) A8-5
B4-4 B6-4 B8-5 C6-5
C6-7

No. 1416

ONLY $10.95

(Requires 6 or 12 volt lantern battery and glue—Not Included.)

Assembles in less than 45 Minutes

Mini Mean Machine

Flying Model Rocket Starter Kit

NEW!

SKILL LEVEL 1 Recommended for Beginners

$25.58 Value Save $5.63

FEATURES:

Mini Mean Machine model rocket kit. Over 38 inches long and capable of flights over 700 feet! Easy to assemble with die-cut balsa fins, balsa nose cone, quick-release engine mount and reliable 12" parachute recovery. Kit decal makes decoring easy. Great model on display and in the air.

Power-Pulse™ Launch Controller. The most revolutionary launch controller Estes has ever produced. Uses the "new" Polaroid ® Pola-Pulse™ P100 6 volt battery. Futuristic controller is ruggedly designed and features safety key, arming light, launch button, 15 feet of launch cable and pre-soldered micro-clips.

Porta-Pad Launcher. Strong girder construction means it will last for years. Newly re-designed for lower, more stable center of gravity. Includes tilt-adjustment feature, 36" x 1/8" two-piece launch rod and blast deflector plate. Disassembles easily for compact storage.

Flight Pack. Includes three high performance model rocket engines, parachute recovery wadding and Solar Igniters plus the Mini Alpha Book of Model Rocketry.

Ship. Wt. 1 lb.

Engines: 1/2A3-2T, A3-2T (1st Flt.), A10-3T

No. 1409 ..... $19.95

(Requires white glue, paint, finishing supplies, and 6 volt Polaroid ® Pola-Pulse™ P100 battery—Not Included. See outside back cover.)

OVER 3 Feet TALL!

FALCON COMMANDER

Exotic Flying Model Rocket Starter Kit

SKILL LEVEL 1 Recommended for Beginners

Dramatic Flights Over 1,000 Feet !

FEATURES:

Futuristic Forward Swept-Wing Falcon Commander Spacecraft. Easy-to-assemble with die-cut balsa fins, plastic nose cone, and quick-release engine mount. Great flights up to 1,000 feet with 12" parachute recovery. Simple paint scheme and realistic kit decals make it a great display model too!

Launch Control System includes launch pad with blast deflector plate and 1/8" x 36" two-piece launch rod. Futuristic, hand-held launch controller features arming light, safety key and ignition button, plus launch cable with micro-clips.

Flight Pak has three high performance Model Rocket Engines plus Solar Igniters and Parachute Recovery Wadding for your first series of lift-offs.

Special Bonus—The Mini-Alpha Book of Model Rocketry is also included.

Ship. Wt. 1 lb.

ENGINES: A8-3 (1st Flt.) A8-5 B4-4 B6-4 B6-6 B8-5 C6-5 C6-7

No. 1428 . . ONLY $11.95

(Requires 6 or 12 volt lantern battery, glue, and paint—Not Included.)

"This is Where to Begin"

THE ALPHA III STARTER KIT

Save big on the purchase of these exciting model rocketry outfits. Individual components purchased separately cost more!

(Batteries, glue, and finishing supplies — Not Included.)

SKILL LEVEL 1 Recommended for Beginners

IF YOU INTEND TO MAKE A REAL HOBBY OF ESTES MODEL ROCKETRY, THIS ALPHA III STARTER KIT IS A PROVEN PERFORMER FOR FLIGHT-AFTER-FLIGHT ENJOYMENT.

KIT INCLUDES:

ALPHA III Rocket with bright red plastic fin-unit and nose cone for easy, quick assembly. Plus realistic kit decals and white body tube. No painting required!

PORTA-PAD launch pad is newly re-designed for increased stability and features tilt-adjustment for wind direction. Features 36" long x 1/8" dia. launch rod with blast deflector plate.

SOLAR LAUNCH CONTROLLER, extremely lightweight and futuristically designed, requiring only 4 alkaline AA batteries (not included). Advanced shape allows for perfect hand-held control and is easily assembled in minutes. Features safety key, continuity check light, and launch button.

FLIGHT PAK with three NAR safety certified Model Rocket Engines, Parachute Recovery Wadding, and Solar Igniters, plus The Mini-Alpha Book of Model Rocketry.

ENGINES: 1/2A6-2 A8-3 (1st Flt.) A8-5 B4-4 B6-4 B8-5 C6-5 C6-7

Ship. Wt. 3 lbs.

No. 1406 . . . . ONLY $18.95

DELUXE FLYING MODEL ROCKETRY STARTER KIT

NEW!

$31.67 VALUE SAVE $8.72

SKILL LEVEL 1 Recommended for Beginners

Includes everything you need to assemble, paint and launch the Alpha rocket. Features Alpha Rocket Kit . . . Construction Supplies . . . Finishing Materials . . . Porta-Pad Launcher . . . Solar Launch Controller . . . Model Rocket Engines . . . Igniters . . . Recovery Wadding . . . and the Mini-Alpha Book of Model Rocketry.

The Alpha rocket features balsa nose cone and die-cut fins, special kit decal and quick-release engine mount. Assembly is quick and easy. Capable of flights over 1,000 feet.

The Porta-Pad launcher features strong girder construction and tilt-adjustment for wind direction. Newly re-designed for increased stability. Includes 36" long x 1/8" diameter two-piece launch rod with blast deflector plate.

Solar Launch Controller is extremely lightweight and futuristically designed, requiring only 4 AA Alkaline batteries for operation. (Batteries not included). Advanced shape allows for perfect hand-held control and is easily assembled in minutes. Features safety key, arming light and launch button.

Special Construction and Finishing Kit makes assembly easy. Includes sand paper, white glue, hobby knife, paint brush and four capsules of paint.

Flight Pak includes three high performance model rocket engines plus Solar igniters, recovery wadding and Mini-Alpha Book of Model Rocketry.

Engines: 1/2A6-2, A8-3 (First Flight), A8-5, B4-4, B6-4, B8-5, C6-5, C6-7

Ship. Wt. 3 lbs.

No. 1407 .... Only $22.95

Batteries Are Not Included

DER BIG RED MAX

SKILL LEVEL 1 Recommended for Beginners

Deluxe Model Rocketry Outfit

VIRTUALLY EVERYTHING YOU NEED TO GET STARTED IN ESTES MODEL ROCKETRY IN A "BIG" WAY. INCLUDES THE BIG RED MAX ROCKET . . . THE ULTRA ADVANCED BIG FOOT LAUNCH CONTROL SYSTEM . . . ENGINES . . . LAUNCHING SUPPLIES . . . AND THE "MINI-ALPHA BOOK OF MODEL ROCKETRY."

At a moderate price you get practically everything needed for assembly, lift-off, and recovery. (Batteries, glue and finishing supplies are not included.)

Experience the fun of building and the thrill of flying the Big Red Max rocket. This big bird, over two feet long, is easy-to-assemble with die-cut balsa fins, quick-release engine mount, huge plastic nose cone, and "far out" Red Max decal sheet. Excellent performance with giant 18" orange and white parachute.

Big Foot Launch Control System (page 52) is capable of launching all the rockets in this catalog and is especially recommended for launching Maxi-Brutes and other large rockets. Futuristically designed launch platform features rugged plastic construction and enormous "two-foot-print" for maximum launch pad stability. Requires four alkaline "D" cell batteries for power (not included). Launch pad includes blast deflector plate, 1/8" x 36" two-piece launch rod, and adjustable swivel mount to compensate for wind direction.

Launch control unit features quick assembly plus safety key, continuity check light, ignition button, and 15 feet of launch cable.

Flight Pak is complete with three high performance, N.A.R. safety-certified engines (two "B" type and one "C" type) plus parachute recovery wadding and "Solar" rocket igniters for your first series of exciting flights.

ENGINES: B4-2 B6-2 (1st Flt.)
B4-4 B6-4 C6-5

Ship. Wt. 3 lbs.

No. 1403

ONLY $22.95

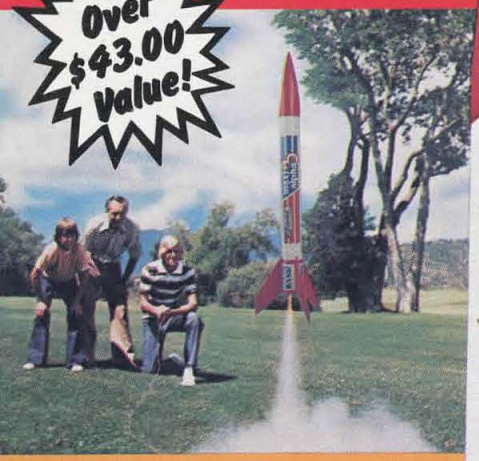
Over 2 Feet Tall!

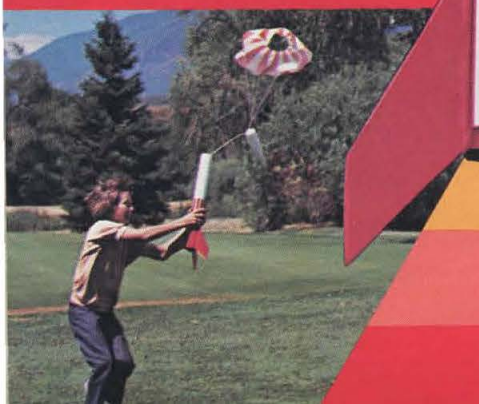
$31.25 Value! You Save $8.30

maxi alpha 3

"Pro-Demo" Model Rocketry Outfit

Over $43.00 Value!





SKILL LEVEL 2

Suggested for individuals with some model building experience.

Perfect for professional style demonstrations.

Features:

GIANT MAXI-ALPHA III ROCKET – Nearly 3 feet long with easy-to-assemble, press-fit, plastic fin-unit and huge plastic nose cone. Features bright red plastic parts and pre-colored white body tube. No painting required! Plus big decal and enormous 24" parachute.

BIG FOOT™ Model Rocketry Launch System – Designed for launching the big ones with giant two-foot-print, 3/16" x 3' Maxi-launch rod, and blast deflector plate. Futuristic launch controller features safety key, arming light, and ignition button.

HIGH PERFORMANCE FLIGHT PAK – Three "super-powered" D12-3 Rocket Engines, plus Parachute Recovery Wadding, Solar Igniters, and "The Mini-Alpha Book of Model Rocketry."
Ship. Wt. 4 lbs.

No. 1411 . . **ONLY $34.95**

24

Nearly 3 Feet Tall and Flies Over 500 Feet High!

(Batteries, glue, and finishing supplies are Not Included.)

Ready-To-Launch X-15 STARTER KIT

1/68th Scale X-15 Rocket Plane Ready-to-launch in 15 minutes.

SKILL LEVEL 1

Recommended for Beginners.

THE PERFECT BEGINNER'S OUTFIT FOR PARENT AND CHILD. BE READY TO LAUNCH YOUR X-15 ROCKET PLANE IN LESS THAN 15 MINUTES. Features all plastic snap-together construction for easy, quick assembly. Ready-to-fly X-15 Rocket Plane comes with 10" recovery parachute, authentic scale decor, and easy-lock engine mount. It looks like the real thing!

Portable futuristic launch control system is ruggedly designed to provide launch-after-launch enjoyment. Advanced launch controller is designed for easy-grip hand-held control with safety interlock key, arming light, and launch control button. Realistic launch pad features 24" two-piece launch rod, pre-soldered micro-clips, mini-blast deflector, and sturdy girder construction. The entire system is pre-wired. (Requires four AA size alkaline penlight batteries for operation—Not Included.)

X-15 Flight Pack includes 3 NAR Safety Certified A3-4T Mini engines, parachute recovery wadding, and Estes high reliability Solar Igniters. Special Bonus: The Mini-Alpha Book of Model Rocketry is also provided to get you started off right.

Ship. Wt. 2 lbs. 8 oz.

10

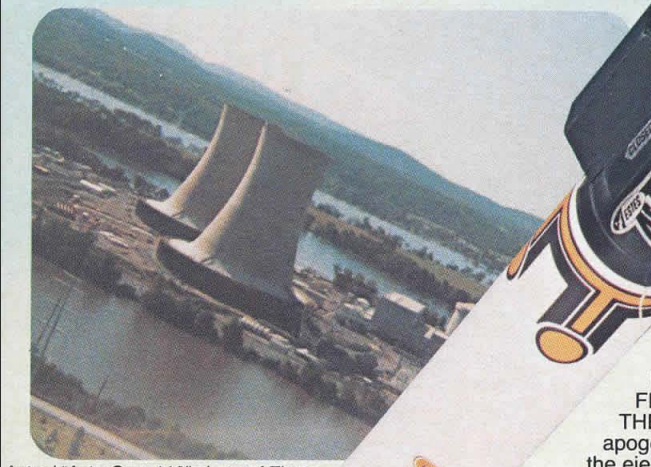
No. 0715

ONLY $22.95

It Really Flies!

ESTES ASTROCAM 110™

Aerial Camera with Delta II Launch Vehicle



Actual "AstroCam 110" photo of Three Mile Island Facility, Middletown, Pa. Taken by Scott Pearce, Westchester, PA.

SKILL LEVEL 2

YOU CAN EXPERIENCE THE THRILL AND EXCITEMENT OF TAKING INCREDIBLE COLOR PHOTOGRAPHS FROM HUNDREDS OF FEET IN THE SKY. As your rocket reaches apogee and begins its descent to Earth, the ejection charge of your rocket engine trips the AstroCam 110's 1/500th second shutter and "snap" . . . you have just taken a dramatic aerial photograph from far above. The "new" AstroCam 110 uses high speed Kodak Kodacolor 110 color print film ASA 400 or equivalent (not included). Film and developing are available locally.

Special features include easy quick-assembly, high quality acrylic lens, molded plastic housing, glass first surface mirror, and high performance aerodynamic design for minimum drag and maximum altitude. Simple to operate and shoots one crisp, clear, full-color 110 photo per flight.

Delta II launch vehicle features specially designed pre-colored plastic fin-unit for consistently smooth and stable flights. Plus white body tube, quick-release engine mount and great-looking, two-color kit decals with dual roll patterns. No painting required! Returns to Earth via 12" dia. parachute. **Specifications – Camera with Launch Vehicle:** Length: 19.1" (49 cm) Dia.: 1.34" (34 mm) Fin Span: 4.75" (12 cm) Wt.: 3.75 oz. (106 g) Ship.Wt. 14 oz.

Film and Developing Available Locally!

Take Incredible "Color" Photos From Hundreds of Feet In The Sky!

Camera Specifications:
Length: 6.5" (16.5 cm)
Dia.: 1.39" (35.3 mm)
Wt.: 1.36 oz. (38.5 g) (Without film)
Wt.: 1.76 oz. (50 g) (With film)

ENGINES: B8-5 B8-7 C6-5 C6-7 (1st Flt.)

No. 1327

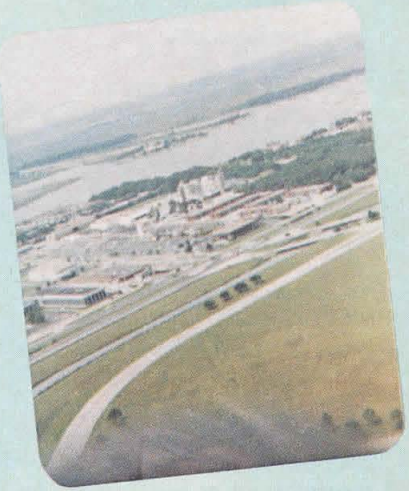
ONLY $20.00

(Launch System, engine, glue, and film are not included.)

ESTES ASTROCAM 110™

AERIAL CAMERA MODEL ROCKETRY OUTFIT

With Delta II Launch Vehicle



Actual "AstroCam 110" photo of Johnson Space Center, Houston, TX.

SKILL LEVEL 2

The AstroCam 110 uses the Delta II Launch Vehicle or Challenger II Model Rocket (See page 28) with special stabilizing fin-units for best photo results. Camera is not sold separately. Other launch vehicles are not recommended.

FEATURES:

*The AstroCam 110, model rocketry's most advanced aerial camera. Shoots sharp, crisp, clear color 110 photos . . . one per flight . . . from hundreds of feet above. Easy-to-assemble and simple to operate.

*Delta II Launch Vehicle features two-color decals, 12" parachute, and special plastic fin unit for smooth and stable flights, time-after-time. All parts are pre-colored . . . no painting required!

*Big Foot Launch System with giant two-foot print for maximum launch pad stability, 1/8" x 36" launch rod, blast deflector plate, and rugged girder construction. Plus hand-held launch controller with continuity check light, safety key, ignition button, and 15 feet of launch cable.

*Requires 4 alkaline type "D" size batteries for power (not included).

*Flight Pak includes three C6-7, high performance Estes Rocket Engines plus Solar Igniters, Recovery Wadding and the Mini Alpha Book of Model Rocketry.

*Uses Kodak Kodacolor 110 color print film, ASA 400, or equivalent – Not Included. **Film and developing are available locally.** Ship. Wt. 3 lbs.

ENGINES: B8-5 B8-7 C6-5 C6-7 (1st Flt.)

No. 1410

Take Incredible "Color" Photos From Hundreds of Feet In The Sky!

ONLY $39.95

Over $43.00 Value!

ASTROCAM 110
AERIAL CAMERA WITH DELTA II LAUNCH VEHICLE
FLYING MODEL ROCKETRY OUTFIT
Featuring Big Foot Launch Control System
ESTES
1979 Model Rocketry Catalog

(Film, batteries, glue, and finishing supplies are not included.)

estes aerospace CLUB

BECOME A MEMBER TODAY!

Join more than 24,000 Estes rocketeers getting the most out of model rocketry. You'll discover membership in the Estes Aerospace Club opens up a whole new world of model rocket activities. The EAC Thrust Bar Achievement Program awards members with iron-on thrust bars & achievement certificates as they progress from one skill level to the next. Your membership includes:

THRUST BAR ACHIEVEMENT PROGRAM

- SKILL LEVEL ONE BEGINNER/NEW EAC MEMBER
- SKILL LEVEL TWO INTERMEDIATE ROCKETEER
- SKILL LEVEL THREE CRAFTSMAN ROCKETEER
- SKILL LEVEL FOUR ADVANCED ROCKETEER
- SKILL LEVEL FIVE EXPERT ROCKETEER

VIPER ROCKET KIT—Club's Exclusive High Performance Design.
ENGINES—1/2A3-2T (1st Flt.) A3-4T A10-3T
MEMBERSHIP CERTIFICATE—Suitable for framing.
CLUB EMBLEM—Official iron-on patch. As you progress to higher skill levels, you receive additional iron-on "thrust" bars.
DECAL SHEET—Identify your rockets as part of the EAC fleet!
RANGE BOX STICKERS—Multi-purpose stick-ons for your range equipment.
EAC STATIONERY—Distinctive stationery for your special notes and letters.
MODEL ROCKETRY TECHNICAL MANUAL—Includes information on construction techniques, finishing, stability, tracking, recovery systems, multi-staging, and boost gliders plus much, much more.
COPY OF MODEL ROCKET NEWS—Features free plan designs, technical articles, contests, rocketeer contributions and more.
JOIN NOW!
BECOME AN ESTES AEROSPACE CLUB ROCKETEER TODAY!!
Simply Check the EAC box on your order form and include your payment. Ship. Wt. 9 oz. Regular EAC Membership

No. 1447

ONLY $6.00

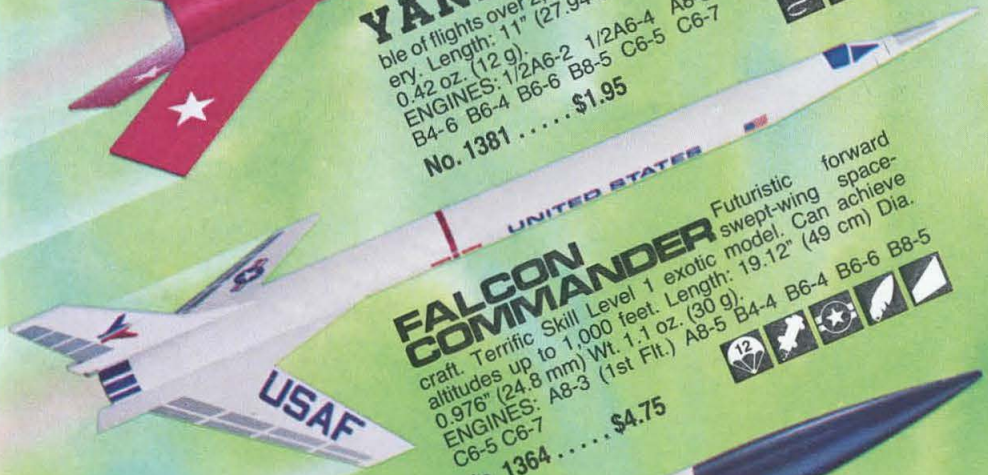
You Get All This...

SKILL LEVEL 1

WIZARD Simple and quick to assemble. One of the highest performing vehicles in Estes' fleet with its 1,600 foot altitude capability and huge 30" streamer recovery system that makes it easy to track. Length: 12" (30.5 cm) Dia. 0.736" (18.7 mm) Wt. 0.79 oz. (20 g).
ENGINES: 1/2A6-2 A8-3 (1st Flt.) A8-5 B4-4 B6-4 B8-5 B8-7 C6-5 C6-7
No. 1292 . . . . . $2.50

NEW!

YANKEE Easy-to-build, yet performance that will rival any rocket. Capable of flights over 2,000 feet with 30" long streamer recovery. Length: 11" (27.94 cm) Dia. 0.736" (18.69 mm) Wt. 0.42 oz. (12 g).
ENGINES: 1/2A6-2 1/2A6-4 A8-3 A8-5 (1st Flt.) B4-4 B4-6 B6-4 B6-6 B8-5 C6-5 C6-7
No. 1381 . . . . . $1.95



FALCON COMMANDER Futuristic forward swept-wing spacecraft. Terrific Skill Level 1 exotic model. Can achieve altitudes up to 1,000 feet. Length: 19.12" (49 cm) Dia. 0.976" (24.8 mm) Wt. 1.1 oz. (30 g).
ENGINES: A8-3 (1st Flt.) A8-5 B4-4 B6-4 B6-6 B8-5 C6-5 C6-7
No. 1364 . . . . . $4.75

KADET Achieve flights over 1,000 feet with this super high flying sport model. Nearly indestructible with pre-colored plastic nose cone and fin-unit. Quick and easy-to-assemble. No painting required! Easy-trak recovery with 30" fluorescent streamer. Length: 15" (38 cm) Dia. 0.98" (25 mm) Wt. 1.13 oz. (32 g).
ENGINES: 1/2A6-2 A8-3 A8-5 B4-4 (1st Flt.) B6-4 B8-5 C6-5 C6-7
No. 1328 . . . . . $4.00

Engines, Launch System, Glue, and Finishing Supplies not included.
Avg. Ship. Wt. 10 oz.

SKILL LEVEL 1

STREAK Lightweight, wind-cheating design (1/8 oz. without engine). Great for contests and records. Features simple feather-weight recovery. Length: 5.6" (14.2 cm) Dia. 0.720" (18.3 mm) Wt. 0.1 oz. (3 g).
ENGINES: 1/2A6-4 (1st Flt.) A8-5 B4-6 B6-6 B8-7 C6-7
No. 1204 ..... $2.25

THE BAT Unique sport model with far-out "BAT" decor. Easy-to-build. Delivers great flights over 1,000 feet and returns via 90" long streamer. Length: 16.63" (42.2 cm) Dia. 0.976" (24.8 mm) Wt. .92 oz. (26 g).
ENGINES: 1/2A6-2 A8-3 (1st Flt.) A8-5 B4-4 B6-4 B8-5 C6-5 C6-7
No. 1362 ..... $4.00

SCOUT Estes Industries first model rocket, originally developed in 1959. Teaches you elementary balance and design principles. Sleek lines and tumble recovery for really exciting flights. Pat. No. 3,114,317. Length: 7" (18 cm) Dia. 0.765" (19.4 mm) Wt. 0.3 oz. (9 g).
ENGINES: 1/2A6-2 (1st Flt.) A8-3 B4-4 B6-4 B8-5 C6-5
No. 1201 ..... $2.25

Mark II Ideal for sport or demonstration flying. Designed for midbody ejection/separation system with streamer recovery. It's an excellent challenge for the novice rocketeer. Top-notch performance. Length: 9.1" (23 cm) Dia. 0.765" (19.4 mm) Wt. 0.7 oz. (20 g).
ENGINES: 1/2A6-2 (1st Flt.) A8-3 B4-4 B6-4 B8-5 B14-5 C6-5
No. 1202 ..... $3.50

ALPHA The ideal kit for your first or second rocket. Swept-fin design makes it a really great performer. Features balsa nose cone and fins. Length: 12.25" (31.1 cm) Dia. 0.976" (24.8 mm) Wt. 0.8 oz. (23 g).
ENGINES: 1/2A6-2 A8-3 (1st Flt.) A8-5 B4-4 B6-4 B8-5 C6-5 C6-7
No. 1225 ..... $3.95

X-RAY Perfect for your first payloader or second kit. Features large see-through payload/cargo section. The recommended single-stage payload vehicle for small biological or insect projects. Length: 16.75" (42.5 cm) Dia. 0.736" (18.7 mm) Payload Section Dia. 0.976" (24.8 mm) Wt. 0.7 oz. (20 g).
ENGINES: 1/2A6-2 A8-3 (1st Flt.) B4-4 B6-4 B8-5 C6-5
No. 1218 ..... $5.75

METEOR Super sport flyer with 90" streamer recovery. High performance flights to 1,200 feet. Length: 18.63" (47.3 cm) Dia. 0.976" (24.8 mm) Wt. .94 oz. (26.5 g).
ENGINES: 1/2A6-2 A8-3 (1st Flt.) A8-5 B4-4 B6-4 B8-5 C6-5 C6-7
No. 1370 ..... $4.25

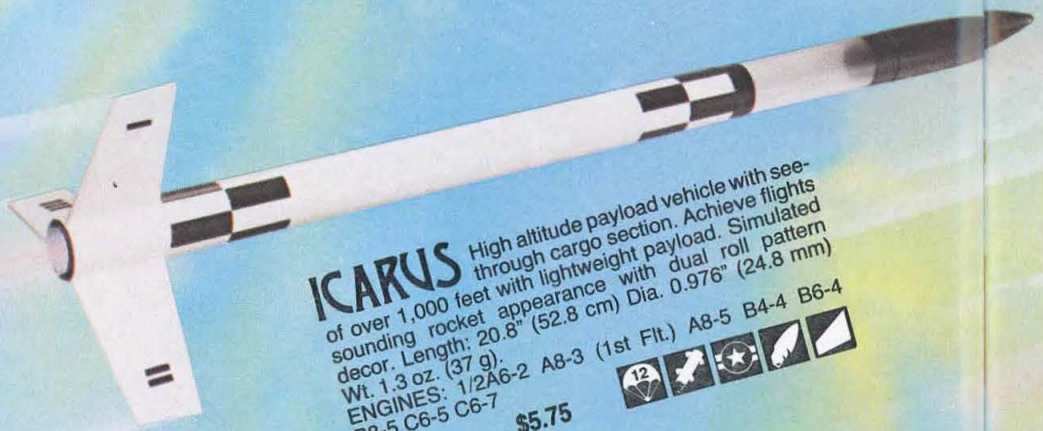
Engines, Launch System, Glue, and Finishing Supplies not included.
Avg. Ship. Wt. 5 oz.

SKILL LEVEL 1

Alpha III

Another great first or second kit. Plastic nose cone and fin assembly make for easy, quick assembly. This rocket will deliver outstanding performance flight-after-flight. Length: 12.25" (31.1 cm) Dia. 0.976" (24.8 mm) Wt. 1.2 oz. (33.9 g). ENGINES: 1/2A6-2 A8-3 (1st Flt.) A8-5 B4-4 B6-4 B8-5 C6-5 C6-7

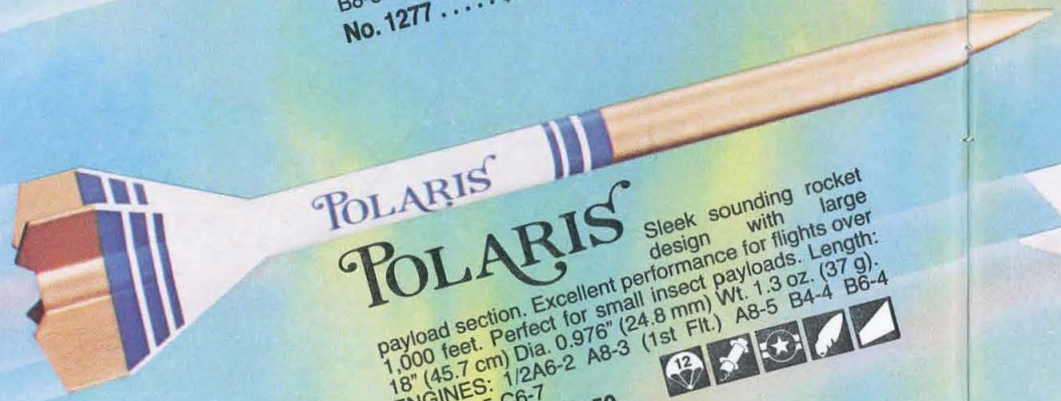
No. 1256 . . . . . $4.25



ICARUS

High altitude payload vehicle with see-through cargo section. Achieve flights of over 1,000 feet with lightweight payload. Simulated sounding rocket appearance with dual roll pattern decor. Length: 20.8" (52.8 cm) Dia. 0.976" (24.8 mm) Wt. 1.3 oz. (37 g). ENGINES: 1/2A6-2 A8-3 (1st Flt.) A8-5 B4-4 B6-4 B8-5 C6-5 C6-7

No. 1277 . . . . . $5.75



POLARIS

Sleek sounding rocket design with large payload section. Excellent performance for flights over 1,000 feet. Perfect for small insect payloads. Length: 18" (45.7 cm) Dia. 0.976" (24.8 mm) Wt. 1.3 oz. (37 g). ENGINES: 1/2A6-2 A8-3 (1st Flt.) A8-5 B4-4 B6-4 B8-5 C6-5 C6-7

No. 1324 . . . . . $5.50

NEW!

FIRECAT

Authentic looking anti-tank missile of the future. Features unique scale-like plastic nose cone. Flights over 1,000 feet are possible with a C engine. Length: 15" (38.1 cm) Dia. 1.04" (26.6 mm) Wt. 1.5 oz. (41 g). ENGINES: 1/2A6-2 A8-3 (1st Flt.) A8-5 B4-4 B6-4 B8-5 C6-5 C6-7

No. 1378 . . . . . $4.00

Sky Hook

An excellent kit for your second rocket. Easy-to-build with terrific performance flight-after-flight. Length: 12" (30.5 cm) Dia. 0.765" (19.4 mm) Wt. 0.7 oz. (20 g). ENGINES: 1/2A6-2 (1st Flt.) A8-3 A8-5 B4-4 B4-6 B6-4 B6-6 B8-5 B8-7 C6-5 C6-7

No. 1208 . . . . . $3.50

SPIN FIN

Unique spin-flight design creates dramatic curling smoke trail on its way up. Spectacular flights over 1,200 feet with 30" streamer recovery. Length: 11.6" (29.5 cm) Dia. 0.736" (18.7 mm) Wt. 0.6 oz. (17 g). ENGINES: 1/2A6-4 A8-5 (1st Flt.) B4-6 B6-6 C6-7

No. 1355 . . . . . $2.75

Astro Bee

Reach altitudes over 1,200 feet with this sounding rocket style design. Length: 14.75" (37.5 cm) Dia. 0.976" (24.8 mm) Wt. 0.823 oz. (23.3 g). ENGINES: 1/2A6-2 A8-3 (1st Flt.) B4-4 B6-4 B8-5 C6-5 C6-7

No. 1356 . . . . . $3.75

Engines, Launch System, Glue, and Finishing Supplies not included.
Avg. Ship. Wt. 10 oz.

SKILL LEVEL 1

QUASAR

Dramatic, easy - to - build model for beginners. Bright white plastic nose cone and fin assembly. Metalized pre-printed mylar wrap-on decal for the body tube. No painting required! Length: 14" (35.6 cm) Dia. 0.976" (24.8 mm) Wt. 1.5 oz. (42 g).
ENGINES: 1/2A6-2 A8-3 (1st Flt.) B4-2 B4-4 B6-2 B6-4 B8-5 C6-5

No. 0650 . . . . . $5.75

Big Bertha

Perfect kit for a "big" second rocket. Ideal for demonstration launches. Slow, realistic lift-off for really spectacular flights. 24" from nose to tail. A real favorite of rocketeers. Length: 24" (61 cm) Dia. 1.637" (41.6 mm) Wt. 2.2 oz. (62.4 g).
ENGINES: A8-3 B4-2 B4-4 B6-2 (1st Flt.) B6-4 B8-5 C6-5

No. 1223 . . . . . $7.00

ANTARES

Achieve flights over 1,200 feet with this high performance sports model. Very easy-to-assemble. Length: 14.6" (37.1 cm) Dia. 0.976" (24.8 mm) Wt. 0.77 oz. (22 g).
ENGINES: 1/2A6-2 A8-3 (1st Flt.) A8-5 B4-4 B6-4 B8-5 C6-5 C6-7

No. 1276 . . . . . $5.00

SCAMP

Great sports flier with sleek, high performance design. Flights over 1,000 feet with "C" type engine. Length: 13.75" (34.9 cm) Dia. 0.976" (24.8 mm) Wt. 0.8 oz. (23 g).
ENGINES: 1/2A6-2 (1st Flt.) A8-3 A8-5 B4-4 B6-4 B8-5 C6-5 C6-7

No. 1286 . . . . . $5.25

GAMMA

Super-sport design for great performance. Attain altitudes over 1,000 feet with "C" type engines. Unique two-piece body construction for simplified two-color paint scheme. Length: 20.1" (51.1 cm) Dia. 0.976" (24.8 mm) Wt. 1.13 oz. (32 g).
ENGINES: 1/2A6-2 A8-3 (1st Flt.) A8-5 B4-4 B6-4 B8-5 C6-5 C6-7

No. 1325 . . . . . $5.50

COMET

High performance sport flyer over 2 feet long. Quick and easy-to-assemble. Delivers great flights over 1,200 feet. Length: 24.25" (61.6 cm) Dia. 1.325" (33.7 mm) Wt. 1.8 oz. (51 g).
ENGINES: A8-3 (1st Flt.) B4-4 B6-4 B8-5 C6-5 C6-7

No. 1368 . . . . . $4.75

Engines, Launch System, Glue, and Finishing Supplies not included.
Avg. Ship. Wt. 10 oz.

SKILL LEVEL 1

Over 3 Feet Long!

Mini Mean Machine NEW!

Mini-powered version of our huge Mean Machine kit. Over 38 inches long and capable of flights over 700 feet. Length: 38.5" (97.8 cm) Dia. 0.736" (18.7 mm) Wt. 1.06 oz. (30 g).
ENGINES: 1/2A3-2T A3-2T (1st Flt.) A10-3T

No. 0865 . . . . . $4.25

mini Bertha

A little sister to the famous Big Bertha listed on page 22. Great performance with colorful 10" parachute recovery. Length: 11.25" (28.58 cm) Dia. 0.736" (18.69 mm) Wt. 0.484 oz. (13.72 g).
ENGINES: 1/2A3-2T (1st Flt.) A3-4T A10-3T

No. 0803 . . . . . $3.50

TWO FOR THE PRICE OF ONE! SUPER FLEA & JAVELIN ONLY $4.25

Javelin

Super performance, easy-to-build covery. Scale-like sounding rocket competition design with streamer re- altitudes over 1,000 feet. Length: 12.4" (31.5 cm) Dia. 0.541" (13.74 mm) Wt. 0.34 oz. (9.6 g).
ENGINES: 1/4A3-2T (1st Flt.) 1/2A3-2T A3-4T A10-3T

JAVELIN & SUPER FLEA COMBO KIT

No. 0815 . . . . . $4.25

Super Flea

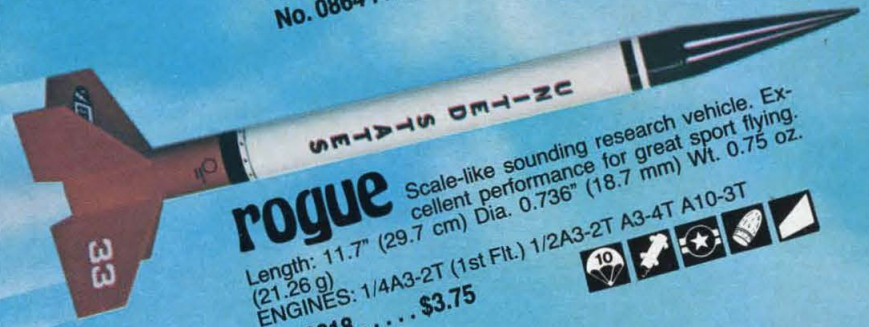
The "Flea's" competition design gives ultra-high performance. Reaches incredible altitudes with ogive nose cone and swept fins. Easy-to-build and features break-away drag re- covery. Length: 7.34" (18.64 cm) Dia. 0.541" (13.74 mm) Wt. 0.158 oz. (4.5 g).
ENGINES: 1/4A3-2T (1st Flt.) 1/2A3-2T 1/2A3-4T A3-4T A10-3T

NEW!

SPARTAN

This super-sleek mini-powered model flies over 400 feet and returns to Earth on a brightly colored 30" streamer. Length: 14.2" (36.1 cm) Dia. 0.976" (24.8 mm) Wt. 0.91 oz. (25 g).
ENGINES: 1/2A3-2T A3-4T (1st Flt.) A10-3T

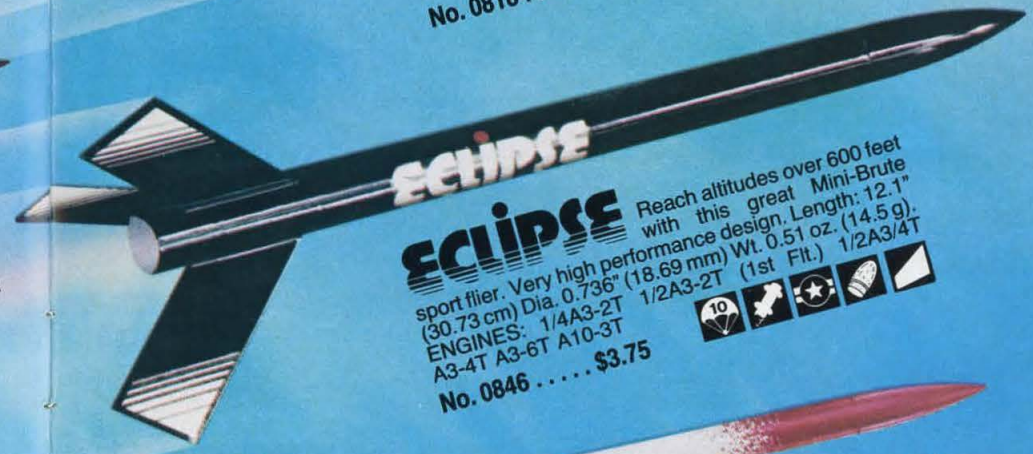
No. 0864 . . . . . $3.75



rogue

Scale-like sounding research vehicle. Ex- cellent performance for great sport flying. Length: 11.7" (29.7 cm) Dia. 0.736" (18.7 mm) Wt. 0.75 oz. (21.26 g).
ENGINES: 1/4A3-2T (1st Flt.) 1/2A3-2T A3-4T A10-3T

No. 0818 . . . . . $3.75



ECLIPSE

Reach altitudes over 600 feet with this great Mini-Brute sport flier. Very high performance design. Length: 12.1" (30.73 cm) Dia. 0.736" (18.69 mm) Wt. 0.51 oz. (14.5 g).
ENGINES: 1/4A3-2T 1/2A3-2T (1st Flt.) 1/2A3/4T A3-4T A3-6T A10-3T

No. 0846 . . . . . $3.75

SARK

Achieve flights over 1,000 feet with the S.A.R.K. space probe. Easy-to-assemble with streamer recovery. Length: 11.13" (28.3 cm) Dia. 0.541" (13.7 mm) Wt. 0.5 oz. (13.3 g).
ENGINES: 1/2A3-2T 1/2A3-4T A3-2T (1st Flt.) A3-4T A3-6T A10-3T

No. 0861 . . . . . $2.95

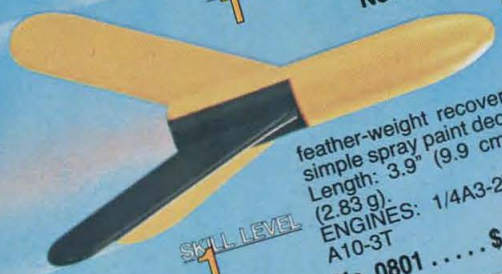
Engines, Launch System, Glue, and Finishing Supplies not included.
Avg. Ship. Wt. 6 oz.

MINI-BRUTES

STAR DART High performance, mini-engine powered sport rocket. Flies over 1,000 feet and returns via streamer recovery. Very easy-to-assemble. Length 8.4" (21.3 cm) Dia. 0.541" (13.7 mm) Wt. .225 oz. (6.4 g).
ENGINES: 1/4A3-2T (1st Flt.) 1/4A3-4T 1/2A3-4T A3-6T

SKILL LEVEL 1

No. 0860 ..... $2.25



MOSQUITO The smallest of all Mini-Brutes combines fantastic performance with simple spray paint decor. Balsa and paper construction with feather-weight recovery. Balsa and paper construction with quick-and-easy assembly. Length: 3.9" (9.9 cm) Dia. 0.541" (13.74 mm) Wt. 0.1 oz. (2.83 g).
ENGINES: 1/4A3-2T (1st Flt.) 1/4A3-4T 1/2A3-4T A3-6T A10-3T

SKILL LEVEL 1

No. 0801 ..... $ .99

BETA Two-stage Mini-Brute for really high flights. Low-drag design with sounding rocket style decor. Booster stage has tumble recovery while top stage returns via parachute. Pat. No. 3,392,302. Length: 13.76" (34.95 cm) Dia. 0.736" (18.69 mm) Wt. 0.75 oz. (21.3 g).
ENGINES: UPPER STAGE 1/4A3-2T (1st Flt.) 1/2A3-4T A3-6T A10-3T BOOSTER STAGE 1/2A3-0T (1st Flt.) A3-0T A10-0T

SKILL LEVEL 2

No. 0845 ..... $4.00

A.S.P. Mini-engine powered, semi-scale model of famous atmospheric sounding projectile. Features spinnerons for realistic spin-flight performance. Length: 20.5" (52.1 cm) Dia. 0.736" (18.7 mm) Wt. 0.82 oz. (23 g).
ENGINES: 1/4A3-2T 1/2A3-4T (1st Flt.) A3-4T A10-3T

SKILL LEVEL 2

No. 0862 ..... $3.50

ESTES STARLINER Futuristic Estes version of a commercial space transport ship of the 21st Century. Mini-engine powered for low cost flights. Length: 12.6" (32 cm) Dia. 0.736" (18.7 mm) Wt. 0.9 oz. (25 g).
ENGINES: 1/2A3-2T (1st Flt.) A3-2T A3-4T A10-3T

SKILL LEVEL 3

No. 0863 ..... $3.75

SKILL LEVEL 2

NEW!

—NASA Photo

SPACE SHUTTLE COLUMBIA Beautiful semi-scale model of America's newest spaceship. Assembles easily with molded plastic nose cone and orbital maneuvering system pods. Spectacular flights over 500 feet with 18" parachute recovery. Makes a great display model too! Length: 10.7" (27.2 cm) Wing Span 8.125" (20.6 cm) Dia. 1.637" (41.58 mm) Wt. 1.98 oz. (55.4 g).
ENGINES: A8-3 (1st Flt.) B4-4 B6-4 B8-5 C6-5

No. 1385 ..... $7.00

Skytracer Interplanetary fighter craft designed with dual directional thrusters, wing mounted laser cannons, and dramatic canopy nose cone. A challenging Skill Level 2 exotic model. Length: 13" (33 cm) Dia. 0.976" (24.8 mm) Wt. 1.9 oz. (54 g).
ENGINES: A8-3 (1st Flt.) B4-4 B6-4 B8-5 C5-3 C6-5

No. 1361 ..... $5.75

Engines, Launch System, Glue, and Finishing Supplies not included.
Avg. Ship. Wt. 6 oz.

SKILL LEVEL 2

Challenger·II

High performance "D" engine powered sport model. Easy-to-assemble and fly in less than one hour. No painting required with black plastic fin-unit, yellow nose cone, and pre-colored white body tube. Recommended high altitude launch vehicle for the AstroCam 110 Aerial Camera (see page 14). Take fantastic aerial photos from over 1,200 feet. (AstroCam 110 Camera not included.)
Length: 24.25" (61.6 cm) Dia. 1.34" (34 mm) Wt. 3.0 oz. (86 g)
ENGINES: D12-7 (1st Flt.) D11-9

No. 1330 . . . . . $7.50

TEROS

Authentic anti-aircraft missile styling with U.S.A.F. decor. Exciting scramjet design with ramjet nose. Super sports model. Length: 13" (33.0 cm) Dia. 0.976" (24.8 mm) Wt. 1.2 oz. (33.9 g).
ENGINES: 1/2A6-2 (1st Flt.) A8-3 B4-4 B6-4 B8-5 C6-5 C6-7

No. 1285 . . . . . $5.25

PATRIOT

Big, burly, and impressive sport model over 25" tall. Spectacular "All-American" red, white, and blue decor. Makes a great demonstration model. Fast, easy construction. Length: 26" (66 cm) Dia. 1.637" (41.6 mm) Wt. 3.3 oz. (94 g).
ENGINES: B4-2 (1st Flt.) B4-4 B6-2 B6-4 B8-5 C6-5 C6-7

No. 0652 . . . . . $7.95

NEARLY 4 FEET LONG!

NOMAD

SURFACE TO SURFACE MISSILE

Super long scale-like surface-to-surface missile with ICBM decor. Nearly 4 feet tall, this big bird is easy-to-assemble with plastic nose cone, adapter section and fin-unit. Features a really long payload section. Length: 44.25" (112.4 cm) Dia. 0.976" (24.8 mm) Wt. 1.48 oz. (42 g).
ENGINES: A8-3 (1st Flt.) B4-4 B6-4 B8-5 C6-5 C6-7

No. 1344 . . . . . $6.25

BLACK BRANT III

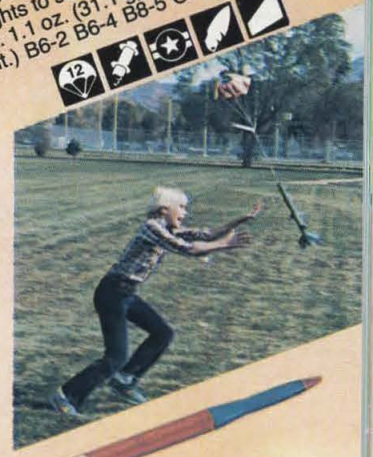
Sounding scale model of the primary research vehicle produced by Canadian Bristol Aerospace. An excellent choice for your first scale project. Simple construction with plastic nose cone and engine nozzle. Flies over 1,000 feet with "C" engine. Length: 20.6" (52.3 cm) Dia. 0.976" (24.8 mm) Wt. 1.06 oz. (30 g).
ENGINES: 1/2A6-2 A8-3 (1st Flt.) A8-5 B4-4 B6-4 B6-6 B8-5 C6-5 C6-7

No. 1293 . . . . . $5.75

SAM-4

Scale-like surface-to-air missile with two-stage appearance. Excellent flights to 900 feet. Length: 18.2" (46.2 cm) Dia. 0.976" (24.8 mm) Wt. 1.1 oz. (31.1 g).
ENGINES: A8-3 B4-2 B4-4 (1st Flt.) B6-2 B6-4 B8-5 C5-3 C6-3 C6-5

No. 1357 . . . . . $5.00



Engines, Launch System, Glue, and Finishing Supplies not included.
Avg. Ship. Wt. 12 oz.

SKILL LEVEL 2

NEW!

NASA Pegasus

Medium range research craft for NASA missions after the Space Shuttle. Flies over 850 feet. Length: 19.75" (50.2 cm) Dia. 1.325" (33.7 mm) Wt. 2.36 oz. (67 g).
ENGINES: A8-3 (1st Flt.) B4-2 B6-4 B8-5 C5-3 C6-3

No. 1376 . . . . . $6.00

NIKE-X

Scale-like single-stage model of U.S. Army's 4th generation, two-stage surface-to-air missile. Nike-style design with U.S. Army decor. Great performance for really impressive flights. Easy-to-assemble. Length: 23.4" (59.4 cm) Dia. 1.325" (33.7 mm) Wt. 2.3 oz. (65 g).
ENGINES: A8-3 (1st Flt.) B4-4 B6-4 B8-5 C6-5

No. 1270 . . . . . $6.75

Stiletto

Exciting scale-like surface-to-air interceptor missile with realistic military decals. Single-engine super-sport performance with two-stage appearance. Length: 22.4" (56.9 cm) Dia. 0.976" (24.8 mm) Wt. 1.27 oz. (36 g).
ENGINES: A8-3 (1st Flt.) B4-4 B6-4 B8-5 C6-5

No. 1323 . . . . . $5.50

NEW!

STREAK

High altitude "D"-powered version of the famous Estes Streak. Delivers flights over 1,300 feet and returns via huge 90" streamer recovery. Length: 13.1" (33.17 cm) Dia. 1.637" (41.58 mm) Wt. 1.76 oz. (50 g).
ENGINES: D12-5 D12-7 (1st Flt.) D11-9

No. 1387 . . . . . $4.25

DER RED MAX

Far-out super-fun model. Large stable design gives great sport performance. Length: 16.25" (41.3 cm) Dia. 1.637" (41.6 mm) Wt. 2.38 oz. (67 g).
ENGINES: B4-2 (1st Flt.) B4-4 B6-2 B6-4 B8-5 C6-5 C6-7

No. 0651 . . . . . $6.95

Odyssey

This unique interstellar spacecraft is conceived to perform a variety of space rescue, exploratory, or intruder intercept missions. Impulse power unit jettisons after lift-off from planetary launch site. Its two-man crew and engineering section are then accelerated to near-light velocities for rendezvous and space rescue operations. Our version features super-detailed plastic nose section. Length: 24.1" (61.21 cm) Dia. 1.325" (33.7 mm) Wt. 2.40 oz. (68 g).
ENGINES: B4-4 B6-4 (1st Flt.) B8-5 C6-5

No. 1289 . . . . . $6.75

Engines, Launch System, Glue, and Finishing Supplies not included.
Avg. Ship. Wt. 11 oz.

SKILL LEVEL 2

CHEROKEE-D

Sleek and powerful "D" engine rocket that will practically sail out-of-sight. Big 18" 'chute brings it down safely flight-after-flight. A really beautiful model for your first "D" powered kit. Length: 21.6" (54.9 cm) Dia. 1.325" (33.7 mm) Wt. 2.75 oz. (78 g).
ENGINES: D11-9 D12-5 (1st Flt.) D12-7

No. 1247 . . . . . $6.50

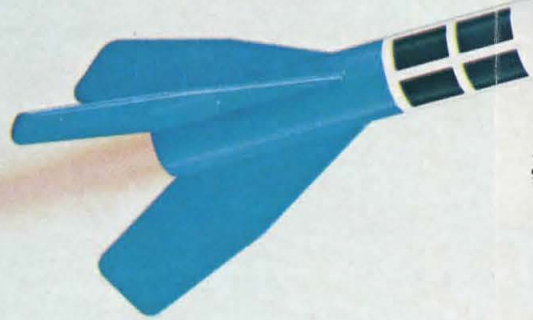
NEARLY 5 FEET LONG!

ESTES COBRA-1500

COBRA-1500

Attain flights over 700 feet, with "C" type engine, from this extra long sport flier. Perfect demonstration model with large 18" parachute recovery. Length: 59" (149.9 cm) Dia. 1.325" (33.6 mm) Wt. 3.17 oz. (90 g).
ENGINES: B4-2 B4-4 (1st Flt.) B6-2 B6-4 B8-5 C6-5

No. 1294 . . . . . $7.50



ESTES SKYBOLT

SKYBOLT

Super "D" engine powered high performance sport model. Spectacular flights over 1,000 feet plus dramatic recovery with 90" streamer. Easy-to-assemble and finish. Length: 23" (58.4 cm) Dia. 1.325" (33.6 mm) Wt. 1.75 oz. (50 g).
ENGINES: D11-9 D12-7 (1st Flt.)

No. 1334 . . . . . $5.25

SKY RAIDER

Flights up to 1,500 feet are possible with this big "D" engine powered payloader. Great sports model with large payload section. Length: 32.75" (83.2 cm) Dia. 1.325" (33.7 mm) Wt. 2.39 oz. (67.8 g).
ENGINES: D12-5 D12-7 (1st Flt.) C6-5 (with EM-2050 adapter not included. See page 61)

No. 1290 . . . . . $6.75

BANDIT

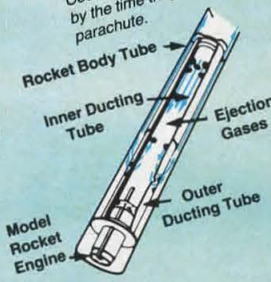
Features advanced ejection ducting system. It never needs recovery wadding! High performance design and military style appearance makes the Bandit a really impressive bird. Over 25" long with large payload section. Length: 27.75" (65.4 cm) Dia. 1.325" (33.6 mm) Wt. 2.6 oz. (73.7 g).
ENGINES: A8-3 B4-4 B6-4 (1st Flt.) B8-5 C6-5

No. 1248 . . . . . $8.50

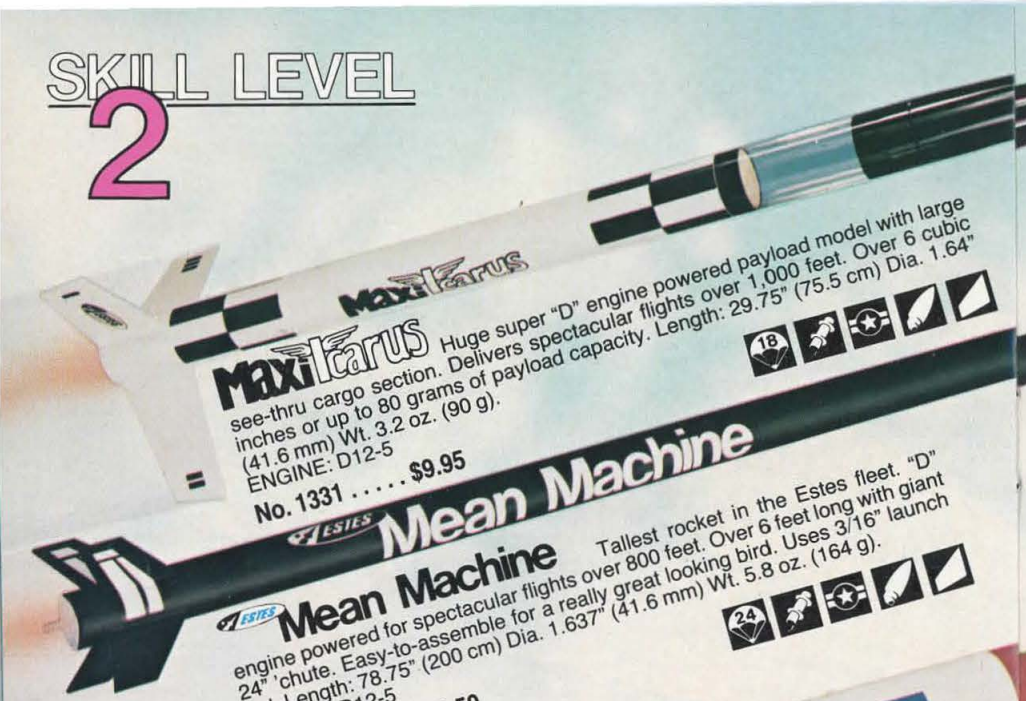
Engine Launch System, Glue, and Finishing Supplies not included.
Avg. Ship. Wt. 11 oz.

BANDIT'S ADVANCED EJECTION DUCTING SYSTEM

Cools ejection gases completely by the time they reach your parachute.



SKILL LEVEL 2



Maxi Icarus

Huge super "D" engine powered payload model with large see-thru cargo section. Delivers spectacular flights over 1,000 feet. Over 6 cubic inches or up to 80 grams of payload capacity. Length: 29.75" (75.5 cm) Dia. 1.64" (41.6 mm) Wt. 3.2 oz. (90 g).
ENGINE: D12-5

No. 1331 . . . . . $9.95

Mean Machine

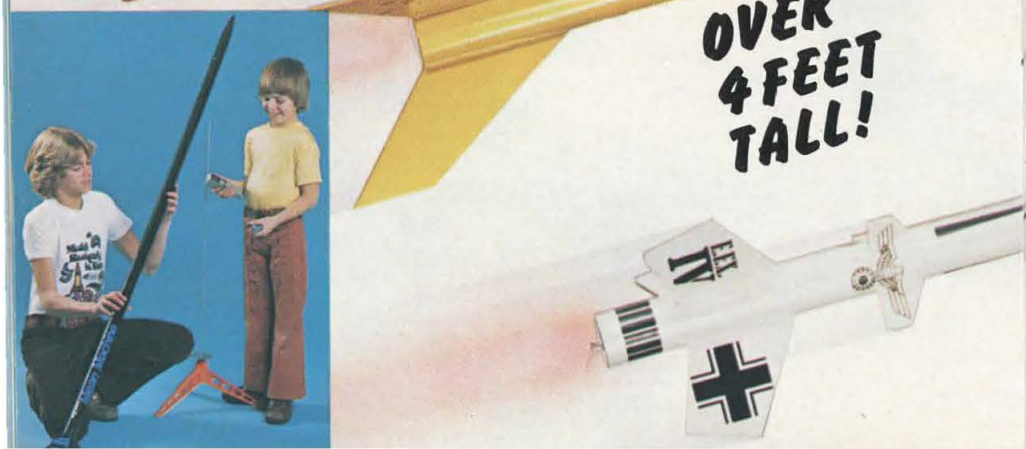
Tallest rocket in the Estes fleet. "D" engine powered for spectacular flights over 800 feet. Over 6 feet long with giant 24" 'chute. Easy-to-assemble for a really great looking bird. Uses 3/16" launch rod. Length: 78.75" (200 cm) Dia. 1.637" (41.6 mm) Wt. 5.8 oz. (164 g).
ENGINE: D12-5

No. 1295 . . . . . $10.50

maxi alpha 3

Very easy-to-assemble giant scale version of one of our most popular kits. Can be ready-to-launch in approximately 30 minutes. Features new press-fit plastic fin-unit, plus plastic nose cone. "D" engine powered for truly spectacular flights up to 500 feet. Perfect for demonstrations. No painting required! Uses 3/16" launch rod. Length: 33.25" (84.46 cm) Dia. 2.6" (66.04 mm) Wt. 7.4 oz. (210 g).
ENGINES: D12-3 (1st Flt.) D12-5

No. 1321 . . . . . $14.00



COLOSSUS

Huge addition to our Maxi-Brute fleet. Over 4 feet long with big plastic nose cone and press-fit plastic fin-unit. Quick and easy-to-assemble. Really spectacular "D" powered flights with slow realistic lift-off. No painting required! Uses 3/16" launch rod. Length: 51.25" (130.18 cm) Dia. 2.6" (66.04 mm) Wt. 9.52 oz. (270 g).
ENGINE: D12-3

No. 1326 . . . . . $21.00

BLUE BIRD ZERO

Experimental sounding design over 3 feet tall. Easy-to-assemble. Delivers high performance flights and gentle recoveries with big 18" recovery 'chute. Length: 39.75" (101 cm) Dia. 1.325" (33.7 mm) Wt. 2.7 oz. (76 g).
ENGINES: B4-2 B4-4 B6-2 B6-4 (1st Flt.) B8-5 C6-5 C6-7

No. 1335 . . . . . $7.00

Engines, Launch System, Glue, and Finishing Supplies not included.
Avg. Ship. Wt. 15 oz.

OVER 6 FEET TALL!

NEARLY 3 FEET TALL!

PERFECT FOR DEMONSTRATIONS!

OVER 4 FEET TALL!

SKILL LEVEL 2

DELTA STAR Really sleek, super high performance two-stage payloader capable of lofting a 1 oz. payload over 1,000 feet with "C" type engines. Can be flown either single or multi-stage. Booster stage employs tumble recovery. Length: 24" (61 cm) Dia. 0.98" (24.9 mm) Wt. 1.13 oz. (32 g).
ENGINES: SINGLE STAGE A8-3 (1st Flt.) B4-4 B6-4 B8-5 B8-7 C6-5 C6-7 UPPER STAGE A8-5 (1st Flt.) B4-6 B6-6 B8-7 C6-7 BOOSTER STAGE A8-0 (1st Flt.) B6-0 B8-0 C6-0
No. 1322 . . . . . $6.50

Multi-Stagers

Multi-staging is the next step in expanding your model rocketry skills. Each kit demonstrates how real spaceships operate. The first stage is always ignited electrically. Second stage ignition occurs automatically in mid-flight upon burnout of the first stage. Performance and maximum altitude are dramatically increased thru multi-staging.

SKY-HI High performance two-stager with single stage, sounding rocket appearance. Nesting fins create very sleek design. Simplified construction. Length: 25" (63.5 cm) Dia. 0.976" (24.8 mm) Wt. 1.7 oz. (48 g).
ENGINES: SINGLE STAGE A8-3 (1st Flt.) B4-4 B6-4 B8-5 C6-5 UPPER STAGE A8-5 (1st Flt.) B6-6 B8-7 C6-7 BOOSTER STAGE A8-0 (1st Flt.) B6-0 B8-0 C6-0
No. 1365 . . . . . $5.25

Scorpion High flying two-stage sport model with research vehicle styling. Easy-to-build and exciting to fly with all plastic fin-units. Booster employs tumble recovery while upper stage streaks skyward to altitudes over 1,000 feet. Length: 26.5" (67.3 cm) Dia. 0.976" (24.8 mm) Wt. 1.8 oz. (52 g).
ENGINES: SINGLE STAGE A8-3 (1st Flt.) A8-5 B4-4 B4-6 B6-4 B6-6 B8-5 C6-5 C6-7 UPPER STAGE A8-5 (1st Flt.) B4-6 B6-6 B8-7 C6-7 BOOSTER STAGE A8-0 (1st Flt.) B6-0 B8-0 C6-0
No. 1333 . . . . . $6.25

MACH-2 Experimental sounding rocket design. This bird is easy-to-assemble and mighty "D" engine powered for flights over 1,000 feet. Length: 25.5" (64.8 cm) Dia. 1.637" (41.6 mm) Wt. 2.6 oz. (72.3 g).
ENGINES: D12-5 (1st Flt.) D12-7
No. 1379 . . . . . $6.50

Vigilante Ultra-high performance two-stage model designed upper stage returns via 18" parachute while the booster employs tumble recovery. Length: 26.5" (67 cm) Dia. 1.325" (33.6 mm) Wt. 2.25 oz. (64 g).
ENGINES: UPPER STAGE 1/2A6-4 A8-5 (1st Flt.) B4-6 B6-6 B8-7 C6-7 BOOSTER STAGE 1/2A6-0 A8-0 (1st Flt.) B6-0 B8-0 C6-0
No. 1278 . . . . . $6.75

Engines, Launch System, Glue, and Finishing Supplies not included.
Avg. Ship. Wt. 12 oz.

SKILL LEVEL 2

Star Speeder

Single place galactic fighter capable of tremendous speed and maneuverability. The Estes version sports great performance with flights over 800 feet. Length: 13.75" (34.9 cm) Dia. 0.736" (18.7 mm) Wt. 1.3 oz. (35 g).
ENGINES: A8-3 (1st Flt.) B4-4 B6-4 B8-5 C6-5

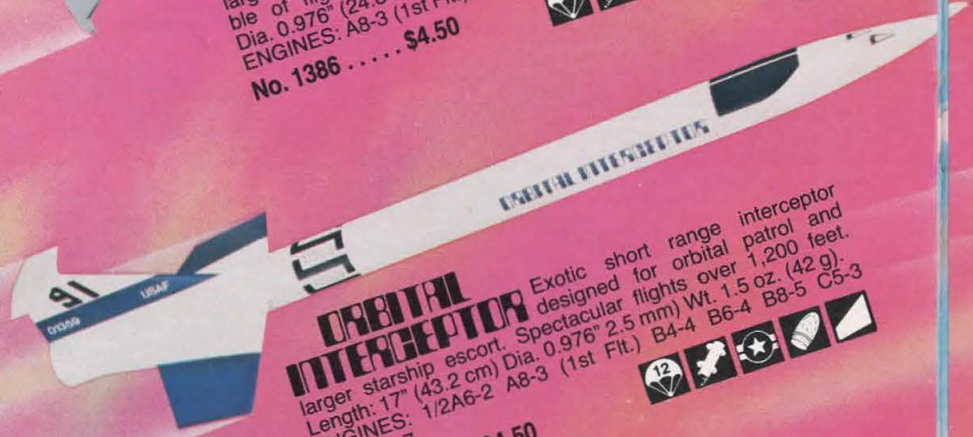
No. 1366 . . . . . $4.75

NEW!

ESTES ASTEROID EXPLORER

Geological data gathering probe of the 1990's. Probes asteroids and other large masses for ore samples. Great display model and capable of flights over 1,000 feet. Length: 16.6" (42.2 cm) Dia. 0.976" (24.8 mm) Wt. 1.09 oz. (31 g).
ENGINES: A8-3 (1st Flt.) B4-4 B6-4 B8-5 C6-5 C6-7

No. 1386 . . . . . $4.50



ORBITAL INTERCEPTOR

Exotic short range interceptor larger starship escort. Spectacular flights over 1,200 feet. designed for orbital patrol and Length: 17" (43.2 cm) Dia. 0.976" 2.5 mm) Wt. 1.5 oz. (42 g).
ENGINES: 1/2A6-2 A8-3 (1st Flt.) B4-4 B6-4 B8-5 C5-3 C6-5 C6-7

No. 1359 . . . . . $4.50

SKILL LEVEL 3

SCISSOR-WING TRANSPORT

This exciting bird introduces the revolutionary new Scissor Wing concept. Features super SST styling and high flight reliability. Capable of glide times of more than 60 seconds. Internal ejection power pod features vertical stabilizer fins. Comes ready-to-assemble with die-cut parts and two-color decals. Length: 22.75" (57.7 cm) Body Dia. 0.976" (24.8 mm) Wing Span 16" (40.6 cm) Wt. w/pod 2.5 oz. (71 g) Wt. w/out pod 1.8 oz. (51 g).
ENGINES: B4-2 (1st Flt.) B6-2 C5-3 C6-3

No. 1265 . . . . . $9.00

PIGEON

Very exotic, two-stage, interplanetary voyager. Features highly detailed futuristic nose cone, plus simulated touch-down struts. Envisioned as a deep space research vehicle of the 21st Century. Length: 26.6" (67.6 cm) Dia. 1.325" (33.7 mm) Wt. 2.7 oz. (77 g).
ENGINES: SINGLE STAGE A8-3 B4-4 B6-4 (1st Flt.) B8-5 C6-5
UPPER STAGE A8-5 (1st Flt.) B4-6 B6-6 B8-7 C6-7 BOOSTER STAGE A8-0 (1st Flt.) B6-0 B8-0 C6-0

No. 1363 . . . . . $8.50

STARSHIP VEGA

Exotic planetary exploration vehicle featuring simulated landing shocks. A great performer with impressive lift-off and recovery. Science fiction styling gives this bird a real spaceship look. Length: 19.5" (49.5 cm) Dia. 0.976" (24.8 mm) Wt. 1.88 oz. (53 g).
ENGINES: A8-3 B4-2 B4-4 B6-2 B6-4 (1st Flt.) B8-5 C6-5 C6-7

No. 1320 . . . . . $8.00

Engines, Launch System, Glue, and Finishing Supplies not included.
Avg. Ship. Wt. 12 oz.

SKILL LEVEL 3

Star ship NOVA

Truly awesome in appearance, believed to be outfitted with this inter-galactic explorer is engines and hyper-space starflight drive. Heavily armed with multiple phaser banks, photon torpedoes, and energy deflection shields, the Nova is prepared to meet any foe. The Estes version of the magnificent starship is perfect for demonstrations and really great for display. Length: 19.75" (50.2 cm) Dia. 0.976" (24.8 mm) Wt. 2.3 oz. (65 g).
ENGINES: B4-2 (1st Flt.) B6-2 C5-3 C6-3

No. 1371 . . . . . $6.75

alien explorer

Incredible alien starship believed to be from a distant galaxy. Is it friend or foe? Its size and unique appearance make it a most dramatic demonstration and display model. Really spectacular lift-off and recovery. Length: 45" (114.3 cm) Dia. 0.976" (24.8 mm) Wt. 2.43 oz. (68.8 g).
ENGINES: B6-2 B6-4 (1st Flt.) B8-5 C6-5

No. 1372 . . . . . $8.50

NEW!

Available 4-15-82

COMANCHE-3

Big three-stager with mighty "D" powered booster. Can be flown in single, two-stage or three-stage configurations. Incredible flights over 2,600 feet. Length: 41" (104.1 cm) Dia. 0.976" (24.8 mm) Wt. 2.08 oz. (59 g).
ENGINES: SINGLE STAGE A8-3 (1st Flt.) B4-4 B6-4 B8-5 C6-5 UPPER STAGE A8-5 (1st Flt.) B4-6 B6-6 C6-7 SECOND STAGE A8-0 (1st Flt.) B6-0 C6-0 BOOSTER D12-0 (1st Flt.)

No. 1382 . . . . . $5.50

NEARLY 4 FEET LONG!

ORION STARFIGHTER

Perimeter defense star-fighter for the Orion cluster. Outfitted with white plasma energy shield and Estegon crystal engines for star-streak acceleration. Length: 20.25" (51.44 cm) Dia. 0.976" (24.81 mm) Wt. 1.115 oz. 31.6 g).
ENGINES: A8-3 B4-2 B4-4 (1st Flt.) B6-2 B6-4 B8-5 C6-5 C6-7

SUPER VALUE!

STARFIGHTER COMBO KIT
Orion StarFighter and Torellian Invader

TORELLIAN INVADER

Galactic invader and primary attack fighter from the Torellian Empire. Capable of deploying Zarchronian space mines and launching photon torpedoes. Length: 20" (50.8 cm) Dia. 0.976" (24.8 mm) Wt. 1.291 oz. (36.6 g).
ENGINES: A8-3 B4-2 B4-4 (1st Flt.) B6-2 B6-4 B8-5 C6-5 C6-7

ORION STARFIGHTER & TORELLIAN INVADER COMBINATION KIT

No. 1343 . . . . . $9.95

Engines, Launch System, Glue, and Finishing Supplies not included.
Avg. Ship. Wt. 10 oz.

SKILL LEVEL 3

S.S. CASSIOPEIA

Envisioned as an interplanetary passenger starship by Estes engineers. This impressive model is a challenge to build and beautiful to display. Dramatic flights up to 900 feet. Length: 32" (81.3 cm) Dia. 0.976" (24.8 mm) Wt. 2.2 oz. (62.5 g).
ENGINES: B4-2 B4-4 B6-2 B6-4 (1st Flt.) B8-5 C6-5 C6-7

No. 1369 . . . . . $6.75

Vindicator

Sleek interplanetary interceptor with futuristically detailed nose cone. A really sharp display model with starfight camouflage decor. Great demonstration model with flights up to 900 feet. Length: 25.5" (64.8 cm) Dia. 1.325" (33.7 mm) Wt. 2.6 oz. (72.4 g).
ENGINES: B4-2 B6-2 B6-4 (1st Flt.) B8-5 C6-3 C6-5

No. 1367 . . . . . $6.75

GOBLIN

Powerful and fast, this spooky little kit really gets up and moves. You'll need a good recovery team to retrieve her as she'll reach 1,500 feet and more flight-after-flight with single "D" engine. Dramatic recovery with big, 2" wide, bright orange tracking streamer. Length: 14.32" (36.3 cm) Dia. 1.325" (33.6 mm) Wt. 2.0 oz. (56.6 g).
ENGINES: D11-9 D12-7 (1st Flt.) (A8-3 B4-4 B6-4 B8-5 C6-5, and C6-7 with adapter EM-2050, not included. See page 61.)

No. 1255 . . . . . $6.75

Satellite Interceptor

Ultra-sophisticated interceptor designed to patrol near-space for possible aggression by hostile satellites. Kit features include printed balsa fins, plus plastic nose and exhaust cones. Flies over 600 feet. Length: 22.25" (56.5 cm) Dia. 0.976" (24.8 mm) Wt. 1.38 oz. (39 g).
ENGINES: 1/2A6-2 A8-3 B4-4 (1st Flt.) B6-4 B8-5 C6-5 C6-7

No. 1296 . . . . . $5.75

NEW!

Andromeda

Designed for journeys to distant planets this incredible "starship of the future" features simulated hybrid fission-ion propulsion engines, forward crew module and colorful mission decor. This beauty is over 43" long and represents a unique entry to our own Starship Fleet. Andromeda's flights are most spectacular. Length: 43.3" (110 cm) Dia. 0.736" (18.7 mm) Wt. 3.0 oz. (85 g).
ENGINES: B4-2 B4-4 B6-2 B6-4 (1st Flt.) B8-5 C6-5

No. 1273 . . . . . $9.95

ATTACK CRAFT ORION

Unique design for dramatic space fighter of the future with quad mounted laser cannons in nose and dual fusion reactor engines. Flies over 1,300 feet with C engine. Length: 12.3" (31.29 cm) Dia. 0.976" (24.8 mm) Wt. 1.41 oz. (40 g).
ENGINES: A8-3 (1st Flt.) B4-4 B6-4 B8-5 C5-3 C6-5

No. 1374 . . . . . $5.75

Engines, Launch System, Glue, and Finishing Supplies not included.
Avg. Ship. Wt. 10 oz.

SKILL LEVEL 3

NEW! Available 3-15-82

HYPERION Exotic, new, deep-space cruiser of the 22nd Century, with unique ring-tail design. Dramatic flights over 900 feet and gentle recoveries via huge 18" parachute. Length: 23.4" (59.36 cm) Dia. 0.976" (24.8 mm) Wt. 1.76 oz. (50 g).
ENGINES: A8-3 B4-4 (1st Flt.) B6-4 B8-5 C6-5

No. 1383 . . $5.50

NEW!

Scorpius Futuristic cruise ship for deep space exploration powered by two ion induction electrification engines. An incredible display model. Length: 15.25" (38.7 cm) Dia. 0.976" (24.8 mm) Wt. 1.59 oz. (45 g).
ENGINES: A8-3 B4-4 (1st Flt.) B6-4 B8-5 C6-5

No. 1375. $5.00

LTV Scout The Scout is a four-stage solid-propellant launch vehicle used for orbital, probe and re-entry missions, holding the record for consecutive successes among all NASA launch vehicles. This is the Italia version, known for its Uhura satellite which discovered the existence of "black holes" in space. This model is extremely detailed with many plastic parts.
Length: 36.09" (91.67 cm) Dia. 1.637" (41.58 mm) Wt. 3.85 oz. (109 g).
ENGINE: C6-5

No. 1287 . . . . . $9.95

SEA STRIKE "D" Scale-like ship-to-air missile with two-stage super "D" engine power. High performance design for incredible 1,800 foot flights. Realistic military appearance. Features tumble recovery booster and 12" parachute recovery for the upper stage. Length: 31" (78.75 cm) Dia. 1.34" (34 mm) Wt. 3.35 oz. (95 g).
ENGINES: SINGLE STAGE D11-9 D12-5 (1st Flt.) D12-7 UPPER STAGE D11-9 D12-7 BOOSTER STAGE D12-0

No. 1332 . . . . . $8.00

NEW!

HERCULES Clear payload section highlights this two-stager. Sleek design that can be flown as a single or two-stage model. Flights over 2,500 feet!
Length: 21.6" (54.93 cm) Dia. 0.976" (24.8 mm) Wt. 1.84 oz. (52 g).
ENGINES: SINGLE STAGE A8-3 (1st Flt.) B4-4 B6-4 B8-5 C6-5
UPPER STAGE A8-5 (1st Flt.) B6-6 B8-5 C6-7 BOOSTER A8-0 (1st Flt.) B6-0 C6-0

No. 1377 . . . . . $5.50

gyROC *"WITH HELICOPTER RECOVERY"* An amazing and unique "helicopter" recovery system makes the Gyroc a must for your fleet. Lifts off with main fins in straight-away position. Engine's ejection charge allows rear fin tips to snap sideways causing rotor effect and helicopter recovery. Unusual appearance and strange performance are sure to catch the interest of on-lookers. Length: 9.8" (24.9 cm) Dia. 0.736" (18.7 mm) Wt. 0.6 oz. (17 g).
ENGINES: 1/2A6-2 (1st Flt.) A8-3 B4-4 B6-4 B8-5 C6-5

No. 1224 . . . . . $3.75

Engines, Launch System, Glue, and Finishing Supplies not included.
Avg. Ship. Wt. 10 oz.

SKILL LEVEL 3

TARTAR

Semi-scale anti-aircraft missile manufactured by Convair Corp. for the U.S. Navy. Actual vehicle is also utilized for ship-to-ship bombardment. Length: 23.25" (59.1 cm) Dia. 1.325" (34 mm) Wt. 2.4 oz. (68 g).
ENGINES: A8-3 B4-4 (1st Flt.) B6-4 B8-5 C5-3 C6-3 C6-5

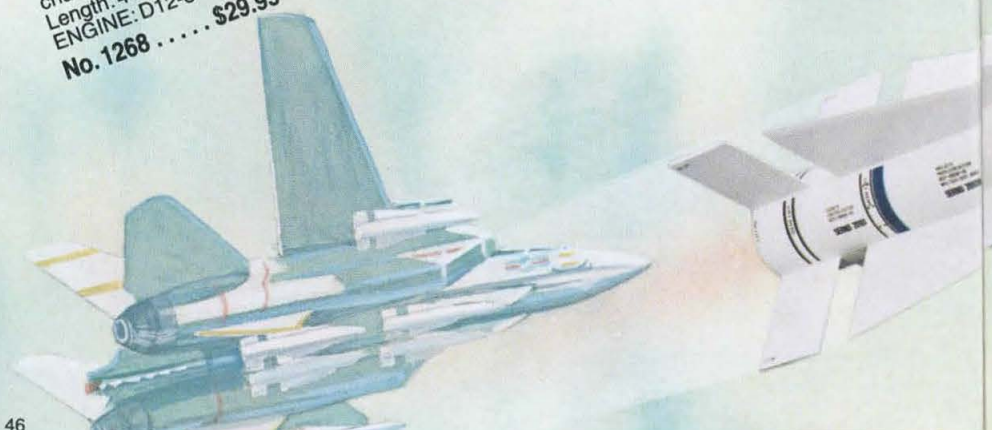
No. 1360 . . . . . $6.25

OVER 3 FEET LONG!

PERSHING-1A

This Maxi-Brute is a true scale model of the U.S. Army's surface-to-surface ballistic missile deployed with NATO units in Europe. Our 1/10 scale model is "D" engine powered with three color decals, pre-shaped fins, and dual 24" parachute recovery. A 3/16" launch rod should be used for best lift-off results. Length: 41" (104.14 cm) Dia. 3.938" (100 mm) Wt. 11.5 oz. (326.03 g).
ENGINE: D12-3

No. 1268 . . . . . $29.95



FLYS TO 1600 FEET!

SPRINT

Real competition design. Highest performance in its class. Up to 1,600 ft. with C6-7 engine. Low drag ogive nose cone and reducer tail section. Contest winning elliptical fins, and streamer recovery. Length: 13.8" (35 cm) Dia. 0.976" (24.8 mm) Wt. 1.0 oz. (28 g).
ENGINES: 1/2A6-2 A8-3 (1st Flt.) A8-5 B4-6 B6-6 B8-5 B8-7 C6-5 C6-7

No. 1249 . . . . . $5.00

OVER 3 FEET LONG!

HONEST JOHN

1/9th scale model of the famous U.S. Army surface-to-surface, supersonic ballistic missile, one of the mainstays of the Army's atomic weapons capability. This highly detailed model uses a single "D" engine for power and comes with pre-shaped, accurately scaled fins and molded plastic nose cone. Spectacular recovery with giant, dual 24" orange and white canopy 'chutes. Great for demonstrations and perfect as an impressive display model. A 3/16" launch rod is recommended for best lift-off results. Length: 37" (94 cm) Dia. 2.6" (66 mm) Wt. 14 oz. (397 g).
ENGINE: D12-3

No. 1269 . . . . . $29.95

30" TALL! PHOENIX

NEW!

Big semi-scale model of the famous Phoenix air-to-air supersonic missile. Impressive in the air and on display. Single "D" powered engine provides a slow, realistic lift-off and flights over 600 feet. Length: 30" (76.2 cm) Dia. 2.60" (66 mm) Wt. 6.6 oz. (188 g).
ENGINE: D12-3 (1st Flt.)

No. 1380 . . . . . $9.95

Engines, Launch System, Glue, and Finishing Supplies Not Included. Avg. Ship. Wt. 32 oz.

SKILL LEVEL 4

–NASA Photo

USA
USA
USA
ASTONISHINGLY REALISTIC RECOVERY SYSTEM! Space Shuttle and Booster Rockets separate in space! Boosters return to earth via giant 18" recovery 'chute, while orbiter glides home!

Model Rocketry's First Scale Space Shuttle

So Realistic, That From A Distance, You'd Swear It Was The Real Thing!!

Dramatic 1/162nd scale reproduction of America's newest space vehicle. Designed as a reusable near space transportation system with satellite deployment and retrieval capability. Delivers really spectacular flights. Semi-scale orbiter employs glide recovery just like the real thing while boosters and external tank return via 18" parachute recovery. Our model features special stabilizer fins for atmospheric flight which remove easily for display. Kit components include injection molded, vacu-formed plastic and die-cut parts. Incredible display model with authentic NASA decor. Shuttle Length: 13.6" (34.5 cm) Dia. 2.04" (51.8 mm) Orbiter Length: 9.0" (22.9 cm) Orbiter Wingspan 7.1" (18.9 cm) Wt. 4.37 oz. (124 g) Ship. Wt. 16 oz. ENGINES: C5-3 (1st Flt.) C6-3

No. 1284 . . . ONLY $14.00

SOARING EAGLE NEW!

Estes' first flex-wing glider. Goes up like a rocket, pod ejects and wings untold. Glide times up to 2 minutes. Length: 23.6" (60 cm) Dia. 0.976" (24.8 mm) Wt. 2.42 oz. (68.5 g). ENGINES: B4-2 (1st Flt.) B6-2 B8-5 C5-3 C6-3

No. 1373 . . . . . $7.00

Orbital Transport

Only a gleam in the eye of NASA, but it's flying for Estes rocketeers right now! Astonishingly realistic recovery system where mothership returns to Earth via huge 18" parachute and interplanetary orbiter glides home. Long and sleek, developed for both orbital and near-space missions. Transport vehicle and glider fly piggy-backed and separate at apogee for spectacular dual recovery. TRANSPORT SHIP Length: 23" (58.4 cm) Dia. 0.976" (24.8 mm) Wing Span 7.9" (20 cm) Wt. 2 oz. (56 g). RE-ENTRY VEHICLE Length: 8.6" (21.8 cm) Dia. 0.736" (18.7 mm) Wing Span 5" (12.7 cm) Wt. 0.5 oz. (14 g). ENGINES: B4-2 B4-4 B6-2 B6-4 (1st Flt.) B8-5 C6-5

No. 1242 . . . . . $8.50

BOEING A.L.C.M. CRUISE MISSILE

Designed to be launched from a large aircraft like the Lockheed C5-A Galaxy or the B-52 Bomber, the Cruise Missile can deliver a nuclear warhead with pin-point accuracy to its target. The Estes near-scale version of this vehicle is a challenging model with blow-molded plastic body, die-cut plastic fins & wings, and injection molded plastic parts. Also included is a 4-color decal sheet, 12" 'chute, and wings that swing out for display. Length: 12.3" (31.2 cm) Wing Span 7.75" (19.69 cm) Wt. 2.79 oz. (78.8 g). ENGINES: A8-3 B4-4 (1st Flt.) B6-4 B8-5 C6-5

No. 1336 . . . . . $9.95

Engines, Launch System, Glue, and Finishing Supplies Not Included.
Avg. Ship. Wt. 16 oz.

SKILL LEVEL 5

SATURN V OVER 43" TALL

Engines, Launch System, Glue, and Finishing Supplies Not Included.

MARS LANDER

Displays futuristic concept for a planetary exploration and landing vehicle. Spring-loaded landing gear simulates realistic upright touch-down. Big 18" bright orange and white canopy 'chute makes for a really great recovery sequence. Includes highly detailed body panels and colorful scale-like decals. Height: 12" (30.5 cm) Dia. 3.8" (96.5 mm) Landing Gear Span 13.2" (33.5 cm) Wt. 3.0 oz. (85 g). Ship. Wt. 16 oz.
ENGINES: B4-2 (1st Flt.) B6-2 C5-3 C6-3

No. 1243 . . . . . $14.00

—NASA Photos

1/100th Scale SATURN V MOON ROCKET

A truly magnificent scale reproduction of the world's most famous rocket . . . the mighty Saturn V. First space vehicle to carry men to the moon and most recently utilized to place Skylab in orbit around Earth. Scaled to 1/100th of its actual size, our model stands an impressive 43-1/2" tall. Single "D" engine power gives this baby a spectacular Cape Canaveral style lift-off. Apollo capsule has life-like recovery with bright 12" orange and white 'chute. Precision molded plastic engine nozzles and Apollo capsule with escape tower give detailed authenticity. Corrugated body wrap-ons make this one of our most precise scale models. Also includes Tech Report on clustering. Length: 43.5" (110 cm) Dia. 3.938" (100 mm) Wt. 9.9 oz. (280 g). Ship. Wt. 3 lbs. 5 oz.
ENGINES: May be flown as a 3 engine cluster or single engine. Cluster Power: C5-3 or C6-3 (3 required).
"D" Power: D12-3 (1 required).

No. 1236 . . . . . ONLY $36.95

NEW! FUTURISTIC PARTS ASSORTMENT

Create your own interplanetary voyagers and space fighters with this selection of science-fiction-style parts. Ideal for the creative designer. Over 50 parts! Includes special exotic fin patterns and design idea sheet. Ship. Wt. 2 lb.

Body Tubes
1 BT-5
1 BT-20
2 BT-50
2 BT-55

Nose Cones
1 PNC-50KA
1 PNC-50F
1 PNC-50SP
1 PNC-50
1 PNC-55B

Fin Material
2 BFS-20
2 BFS-30
1 BFS-40

Parachutes
1 PK-10
2 PK-12
1 PK-18
1 PK-24

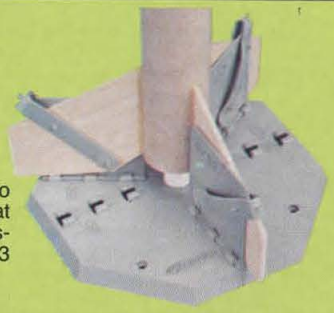
Recovery Equipment
3 Shock Cord 1/8" x 18"
1 Shock Cord 1/4" x 36"
1 Streamer Material 1" x 30"

Miscellaneous
3 Engine Blocks (EB-20A)
1 Stage Coupler (JT-50C)
1 Stage Coupler (JT-55C)
3 Engine Holders (EH-2)
12 Launch Lugs (LL-2B)
2 Engine Mounts (EH-2050)
1 Nose Block (NB-20)
1 Nose Block (NB-50)
1 Multi-Purpose Adapter Set (TA-1)
1 Fin Pattern Sheet
1 Exotic Fin Pattern Sheet
1 Design Idea Sheet
1 Mini Alpha Book of Model Rocketry

AVAILABLE MARCH 31, 1982

No. 1465 . . . . . Only $22.95

ESTES FIN ALIGNMENT GUIDE



Position and glue fins quickly and easily. Fits body tubes up to BT-101. Designed for either 3 or 4 finned rockets, aligning fins at 90° or 120° to each other. Easily assembled with slip-together plastic parts. Adjusts quickly with plastic fin position clips. Ship. Wt. 3 lbs.

No. 2231 . . . . . ONLY $7.50

Designer's Special

Ideal parts assortment for the creative rocketeer. Develop your own R & D program. Over 75 pieces at an excellent savings! Ship. Wt. 2 lbs.

Body Tubes
2 BT-5
2 BT-20
2 BT-50
1 BT-55
1 BT-60

Nose Cones
1 BNC-5E
1 BNC-5S
1 BNC-20B
1 BNC-20R
1 PNC-50KA
1 PNC-50Y
1 PNC-55AC
1 PNC-60L

Fin Material
2 BFS-20
2 BFS-30
2 BFS-40

Parachutes
1 PK-10
2 PK-12
1 PK-18
1 PK-24

Recovery Equipment
3 Shock Cord 1/8" x 18"
1 Shock Cord 1/8" x 36"
1 Shock Cord 1/4" x 36"
1 Streamer Material 1" x 30"
6 Screw Eyes

Miscellaneous
3 Engine Blocks (EB-20A)
3 Engine Holders (EH-3)
3 Engine Holders (EH-2)
1 Engine Mount (EH-2050)
1 Engine Mount (EH-2060)
1 Nose Block (NB-20)
1 Nose Block (NB-50)
1 Stage Coupler (JT-55C)
1 Stage Coupler (JT-60C)
1 Balsa Adapter (TA-2050A)
1 Multi-Purpose Paper Adapter Set (TA-1)
12 Launch Lugs (2-3/8" long)
1 Alpha Book of Model Rocketry
1 Fin Pattern Sheet No. 2
1 Fin Pattern Sheet No. 3

No. 1463 . . ONLY $19.95

Launch Equipment

Big Foot™

"Designed for the Big Ones!"

MODEL ROCKET LAUNCH CONTROL SYSTEM

The Estes Big Foot launch control system is capable of launching all Estes models including Maxi-Brutes. Futuristically designed launch platform features rugged plastic construction and enormous "two-foot-print" for maximum launch pad stability. Includes blast deflector plate, 1/8" x 36" two-piece launch rod, adjustable swivel mount to compensate for wind direction which is adaptable to either 1/8" or 3/16" launch rods, and has legs which remove easily for compact storage. This launch control unit is engineered for simple, quick assembly and features safety key, continuity check light, ignition button and 15 feet of launch cable. (Uses 4 alkaline type, "D" cell batteries and Estes Solar Igniters #2301—Not Included.) Ship. Wt. 2 lbs.

No. 2208 . . . . . $19.95

NEWLY Re-designed!

The Power-Pulse™ Launch Controller (#2210), the Solar Launch Controller (#2300) or the Astron Launch Control System (#2212) are the recommended launch control systems for use with the Porta-Pad (#2217).

PORTA-PAD

LAUNCH PAD

Newly re-designed for increased stability, the Porta-Pad is rugged enough to take the stress of countless launchings, even with the big Estes "D" engines, yet is lightweight and compact enough for easy carrying and storage. Strong, girder construction allows for launching all Estes rockets. Accommodates standard 1/8" rod (#2234) or heavy-duty 3/16" Maxi-Rod (#2239). Tilt adjustment allows you to compensate for wind direction. Ship. Wt. 1 lb. 8 oz.

No. 2217 . . . . . ONLY $8.50

Astron Launch Control System

Heavy-Duty Launch Controller features futuristic design and provides greater reliability with simplified assembly. Bright orange plastic controller gives realistic ignition system appearance. Recommended for 6 or 12 volt power sources. No need to remove battery from car, simply connect launch system's battery clips to terminals. Features include arming lamp, safety key, launch button, battery clips, micro-clips, and 18 feet of launch cable. Ship. Wt. 12 oz.

No. 2212 . . . . . ONLY $8.50

SOLAR LAUNCH CONTROLLER

MODEL ROCKETRY'S MOST ADVANCED LAUNCH SYSTEM

The Solar Launch Control System should be standard equipment in your range box. This futuristically designed launch control unit requires only 4 alkaline type AA size batteries for power. Advanced shape allows for perfect hand-held control. Unit is easily assembled in minutes and features safety key, continuity check lamp, ignition button, and 15 feet of lightweight launch cable. System is constructed of durable "non-breakable" plastic. Micro-clips are presoldered. Use with Estes Solar Igniters (#2301). (Batteries not included.) Length: 6.1" (15 cm) Ht. 2.4" (6 cm). Width 1.44" (4 cm) Wt. (with batteries) 7 oz. (199 g) Ship. Wt. 8 oz.

No. 2300 . . . . . ONLY $9.50

Launch Supplies

1/8" DIA. TWO-PIECE LAUNCH ROD: Handy collapsible two-piece rod for portable launchers. Pieces slip together to make a 36" long rod. Base rod has a diameter of 1/8". Ship. Wt. 6 oz.
No. 2234 . . . . . $1.30

ADD-ON ROD: Sturdy 1/8" diameter, 18" long launch rod section expands two-piece rod to 54" length. Ship. Wt. 6 oz.
No. 2236 . . . . . $ .75

3/16" DIA. MAXI-ROD: Perfect for launching Maxi-Brute kits and other large rockets. Fits Porta-Pad Tripod (#2217) and Big Foot Launch Pad (#2208). Two-piece construction 36" long, light-weight aluminum launch rod. Collapsible for easy storage. Ship. Wt. 12 oz.
No. 2239 . . . . . $2.60

MICRO-CLIPS: Equip your launcher with the best. Spring-loaded solid steel clips connect lead wires to igniters. Easy-to-clean and highly conductive with flat contact surfaces. Only 1.1 inches long. Attach to leads with or without solder. Ship. Wt. 1 oz.
No. 2247 . . . . . 2 for $ .95

LAUNCH ROD SAFETY CAP WITH UNIVERSAL SAFETY KEY

LAUNCH ROD SAFETY CAP with UNIVERSAL SAFETY KEY: For Launch Pad Safety! Includes plastic launch rod cap, universal safety key, and elastic cord. Fits all Estes launch control systems. Ship. Wt. 4 oz.
No. 2205 . . . . . $ .75

BLAST DEFLECTOR PLATE: Slip-on metal deflector plate fits any launcher using 1/8" or 3/16" rods. Protects launcher base from rocket blast. Four-inch diameter. Ship. Wt. 5 oz.
No. 2241 . . . . . $1.40

BATTERY CLIPS: Hook-up to car batteries. Heavy-duty clips connect to terminals up to 1" in dia. With insulators. Ship. Wt. 5 oz.
No. 2245 . . . . . 2 for $1.30

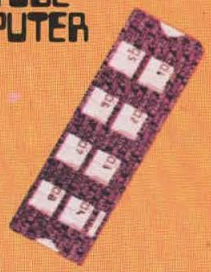
AltiTrak™ Altitude Finder

Skill Level 1

Track your rocket to the top of its flight and instantly lock-in its altitude on the "new" AltiTrak altitude finder. Displays exact model rocket altitude on metric scale—no guessing! (Conversion table included for feet.) A precision instrument made of durable plastic. Easy-to-assemble and looks like futuristic laser pistol. How high did it go? Now you'll know! Ship. Wt. 15 oz.

No. 2232 . . . . . ONLY $6.75

PREDICTED ALTITUDE COMPUTER



The Estes Pocket Size Altitude computer enables any rocketeer to predict his model rocket's altitude in a matter of seconds. Just move the center slide in a simple procedure for fast, accurate results. Three color calculator comes complete with instructions. Ship. Wt. 3 oz.

No. 9015 . . . . . ONLY $2.50

EMERGENCY REPAIR KIT

A must for every range box. Features many essential materials for "on-the-spot" repair of your model rockets. Ship. Wt. 8 oz.

INCLUDES:
- Sandpaper
- Screw Eyes
- White Glue Packet
- Launch Rod Safety Cap
- Universal Safety Key
- Recloseable Pouch
- Recovery Wadding
- 12" Parachute
- 1/8" and 1/4" Shock Cords
- 144" Shroud Line
- Tape Discs
- Launch Lugs
- Shock Cord Mounts

No. 2233 . . . . . ONLY $2.00

PHANTOM SKILL LEVEL 1

Educational, See-Thru Rocket with Recovery System, 10" Parachute, Engine Mount, and Cut-Away Engine!

Perfect static demonstration model for workshops and presentations. Shows all internal components of a model rocket plus special cut-away version of C6-5 model rocket engine.

Ideal for displays and exhibits.

Length: 12.6" (32.0 cm) Dia. 0.976" (24.8 mm) Wt. 1.35 oz. (38.3 g) Ship. Wt. 3 oz.

No. 1207 . . . . . ONLY $4.75

START A MODEL ROCKET PROGRAM IN YOUR SCHOOL! Want to get your teacher interested in a model rocketry program? Send us (1) your teacher's name, (2) the name of your school, and (3) the school's address (include street address, city, state, and zip). If your teacher has a specialty (such as science, industrial arts, physics, etc.), tell us. Send this information to Education Dept., Estes Industries, Dept. 51, Penrose CO 81240. We will send your teacher information on how to start an educational model rocketry program.

ATTENTION 4-H, Scout, Cub, Camp, and Recreation Leaders: For information on how model rocketry can help in your own program write: Education Department, Estes Industries, Dept. 51, Penrose, CO 81240. State type of group and what you would like to do.

Model Rocket Engines

ESTES. A DAMON COMPANY

★Reliability-Proven In Over 190 Million Safe Launchings!

★Quality-Tested For High Performance Flights!!

★The Finest Engine Made . . . You Can Depend On It . . . For Every Flight Application!!

The design and development of the Estes model rocket engine was the real beginning of the safe, educational and exciting hobby that model rocketry has become.

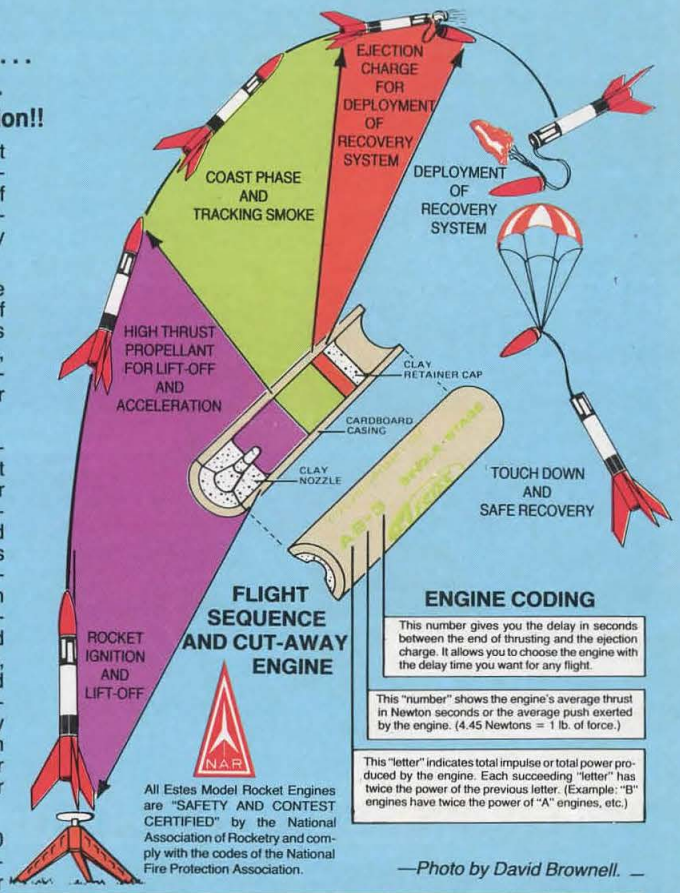
Today's modern rocket engine is the result of over 24 years of engineering efforts at Estes Industries. Consequently, today's rocketeer has dependable, safety-proven engines for his use.

The energy-packed, solid propellant Estes model rocket engine is a complete power system for your rocket. It is designed and pre-manufactured to perform all power functions for dependable launch and activation of a recovery system. In one compact package it provides thrust for quick lift-off and acceleration to high altitudes, allows for a timed delay period to reach peak altitude while delivering a smoke trail for easy tracking, and supplies ejection power for the parachute or other recovery system for your rocket's safe return to Earth.

Reliability-proven in over 190 million launchings. Estes engines are manufactured under strict, quality-controlled conditions within exacting tolerance limits. You can count on them for consistent performance from one launch to the next. You'll launch with confidence in all your model rocketry activities.

More than 3% of all Estes model rocket engines produced are static tested to insure rocketeers of the highest performing, most reliable model rocket engines made. Here, an Estes employee static tests an engine for overall performance and safety in the advanced, Estes engine testing facility.

Graphic explanation of a model rocket engine's basic construction and functions.


EJECTION CHARGE FOR DEPLOYMENT OF RECOVERY SYSTEM
COAST PHASE AND TRACKING SMOKE
DEPLOYMENT OF RECOVERY SYSTEM
HIGH THRUST PROPELLANT FOR LIFT-OFF AND ACCELERATION
CLAY RETAINER CAP
CARDBOARD CASING
CLAY NOZZLE
TOUCH DOWN AND SAFE RECOVERY
ROCKET IGNITION AND LIFT-OFF
FLIGHT SEQUENCE AND CUT-AWAY ENGINE
ENGINE CODING
This number gives you the delay in seconds between the end of thrusting and the ejection charge. It allows you to choose the engine with the delay time you want for any flight.
This "number" shows the engine's average thrust in Newton seconds or the average push exerted by the engine. (4.45 Newtons = 1 lb. of force.)
This "letter" indicates total impulse or total power produced by the engine. Each succeeding "letter" has twice the power of the previous letter. (Example: "B" engines have twice the power of "A" engines, etc.)
All Estes Model Rocket Engines are "SAFETY AND CONTEST CERTIFIED" by the National Association of Rocketry and comply with the codes of the National Fire Protection Association.

—Photo by David Brownell.

ROCKET ENGINE SELECTION CHART

Prod. No.	Engine Type	Prices 3 for	Total Impulse lb-sec ①	Total Impulse n-sec ②	Time Delay (±15%)	Max. Lift Wt.	Max. Thrust	Thrust Duration	Initial Weight Oz.	Initial Weight G.	Propellant Weight Oz.	Propellant Weight G.
SINGLE STAGE ENGINES										GREEN LABEL		
1593	1/2A6-2	$2.55	0.28	1.25	2 sec.	2.5 oz.	46 oz.	0.20 sec.	0.53	15.0	0.055	1.56
1598	A8-3	$2.65	0.56	2.50	3 sec.	4.0 oz.	48 oz.	0.32 sec.	0.57	16.2	0.110	3.12
1601	B4-2	$2.75	1.12	5.00	2 sec.	4.0 oz.	48 oz.	1.20 sec.	0.70	19.8	0.294	8.33
1602	B4-4	$2.75	1.12	5.00	4 sec.	3.5 oz.	48 oz.	1.20 sec.	0.74	21.0	0.294	8.33
1605	B6-2	$2.75	1.12	5.00	2 sec.	4.5 oz.	48 oz.	0.83 sec.	0.68	19.3	0.220	6.24
1606	B6-4	$2.75	1.12	5.00	4 sec.	4.0 oz.	48 oz.	0.83 sec.	0.71	20.1	0.220	6.24
1620	B8-5*	$2.85	1.12	5.00	5 sec.	5.0 oz.	5 lb.	0.60 sec.	0.68	19.3	0.220	6.24
1617	C5-3	$2.95	2.25	10.00	3 sec.	8.0 oz.	5 lb.	2.10 sec.	0.90	25.5	0.450	12.70
1613	C6-3	$2.95	2.25	10.00	3 sec.	4.0 oz.	48 oz.	1.70 sec.	0.88	24.9	0.440	12.48
1614	C6-5	$2.95	2.25	10.00	5 sec.	4.0 oz.	48 oz.	1.70 sec.	0.91	25.8	0.440	12.48
UPPER STAGE ENGINES ③										PURPLE OR BLUE LABEL		
1594	1/2A6-4	$2.55	0.28	1.25	4 sec.	1.0 oz.	46 oz.	0.20 sec.	0.54	15.3	0.055	1.56
1599	A8-5	$2.65	0.56	2.50	5 sec.	2.0 oz.	48 oz.	0.32 sec.	0.62	17.6	0.110	3.12
1604	B4-6	$2.75	1.12	5.00	6 sec.	1.5 oz.	48 oz.	1.20 sec.	0.78	22.1	0.294	8.33
1607	B6-6	$2.75	1.12	5.00	6 sec.	2.0 oz.	48 oz.	0.83 sec.	0.78	22.1	0.220	6.24
1615	C6-7	$2.95	2.25	10.00	7 sec.	2.5 oz.	48 oz.	1.70 sec.	0.95	26.9	0.440	12.48
BOOSTER ENGINES										RED LABEL		
1600	A8-0	$2.65	0.56	2.50	none	4.0 oz.	48 oz.	0.30 sec.	0.51	14.2	0.110	3.12
1608	B6-0	$2.75	1.12	5.00	none	4.0 oz.	48 oz.	0.80 sec.	0.58	16.4	0.220	6.24
1616	C6-0	$2.95	2.25	10.00	none	4.0 oz.	48 oz.	1.68 sec.	0.80	22.7	0.440	12.48

All engines listed above are 2.75 in. (6.99 cm) long and 0.690 in. (1.75 cm) dia.

Ship. Wt. of each package of engines is approximately 4 oz.

Complete instructions and Solar Rocket Igniters are included with each package of Estes model rocket engines.

*Series II engines have semi-core-burning grain with large propellant burning area for high initial thrust with short thrust duration. "B8" type engines replace previous "B14" type engines.

NOTES:

① Pound-seconds (Figures shown are maximum)
② Newton-seconds (Figures shown are maximum)
③ Or Single Stage Engine if used in very light rocket.

MINI-ENGINE SELECTION CHART

Prod. No.	Engine Type	Prices 4 for	Total Impulse lb-sec ①	Total Impulse n-sec ②	Time Delay (±15%)	Max. Lift Wt.	Max. Thrust	Thrust Duration	Initial Weight Oz.	Initial Weight G.	Propellant Weight Oz.	Propellant Weight G.
SINGLE STAGE ENGINES										GREEN LABEL		
1503	1/2A3-2T	$2.75	0.28	1.25	2 sec.	2 oz.	28 oz.	0.36 sec.	0.198	5.6	0.062	1.75
1506	A3-2T	$2.85	0.56	2.50	2 sec.	3 oz.	28 oz.	0.86 sec.	0.254	7.2	0.124	3.50
1507	A3-4T	$2.85	0.56	2.50	4 sec.	2 oz.	28 oz.	0.86 sec.	0.268	7.6	0.124	3.50
1511	A10-3T	$2.85	0.56	2.50	3 sec.	5 oz.	48 oz.	0.26 sec.	0.277	7.9	0.133	3.78
UPPER STAGE ENGINES ③										PURPLE OR BLUE LABEL		
1504	1/2A3-4T	$2.75	0.28	1.25	4 sec.	1 oz.	28 oz.	0.36 sec.	0.212	6.0	0.062	1.75
1508	A3-6T	$2.85	0.56	2.50	6 sec.	1 oz.	28 oz.	0.86 sec.	0.282	8.0	0.124	3.50
BOOSTER ENGINES										RED LABEL		
1510	A10-0T	$2.85	0.56	2.50	none	5 oz.	48 oz.	0.26 sec.	0.235	6.7	0.133	3.70

Mini-Engines are 1.75 in. (4.45 cm) long and .500 in. (1.27 cm) dia. Ship. Wt. of each package of mini-engines is approximately 2-1/2 oz.

MIGHTY "D" ENGINES Recommended Only for Experienced Rocketeers!

Prod. No.	Engine Type	Prices 3 for	Total Impulse lb-sec①	Total Impulse n-sec②	Time Delay (±15%)	Max. Lift Wt.	Max. Thrust	Thrust Duration	Initial Weight Oz.	Initial Weight G.	Propellant Weight Oz.	Propellant Weight G.
SINGLE STAGE ENGINES										GREEN LABEL		
1666	D12-3	$4.95	4.48	20.0	3 sec.	14 oz.	9 lb.	1.70 sec.	1.49	42.2	0.879	24.93
1667	D12-5	$4.95	4.48	20.0	5 sec.	10 oz.	9 lb.	1.70 sec.	1.52	43.1	0.879	24.93
UPPER STAGE ENGINES ③										PURPLE OR BLUE LABEL		
1668	D12-7	$4.95	4.48	20.0	7 sec.	8 oz.	9 lb.	1.70 sec.	1.55	44.0	0.879	24.93
1669	D11-9	$4.95	3.37	15.0	9 sec.	8 oz.	6.3 lb.	1.40 sec.	1.51	42.9	0.65	18.50
BOOSTER ENGINES										RED LABEL		
1665	D12-0	$4.95	4.48	20.0	none	14 oz.	9 lb.	1.70 sec.	1.44	40.9	0.879	24.93

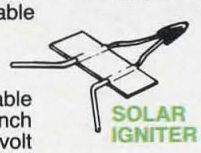
"D" engines are 2.75 in. (6.99 cm) long and 0.945 in. (2.40 cm) dia.
Ship. Wt. of each package of "D" engines is approximately 6-1/2 oz.

IMPORTANT-

All the rockets shown in this catalog can be flown over and over again. Simply replace the engine, igniter, and recovery wadding for each new flight.

SOLAR IGNITERS: Add increased reliability at lift-off with Estes "high performance" Solar Igniters. This uprated igniter is designed especially for the Solar Launch Controller (#2300), Big Foot Launch Control System (#2208) and new Power Pulse Launch Controller (#2210). Features easy engine installation and is suitable for all Estes launch control systems. Unique four element design makes it the most dependable igniter made. Ship. Wt. 1 oz.

No. 2301 . . . . . 6 for $1.25



ASTRON IGNITERS: Easy to use for reliable ignition every time. Recommended for launch systems using 6 or 12 volt car batteries or 12 volt lantern batteries. (Patent No. 3,363,559). *Not recommended for Solar Launch Controller (#2300), Big Foot Launch Control System (#2208) or Power-Pulse Launch Controller (#2210). Ship. Wt. 1 oz.*

No. 2225 . . . . . 6 for $1.25

Estes Solar Igniter drying tunnel.
—photo by David Brownell

RECOVERY WADDING: provides protection from hot ejection gases for parachutes and streamers. Each package contains approximately 75 4-1/2" squares — enough wadding for up to 25 flights. Instructions for installation are included in each package. Ship. Wt. 6 oz.

No. 2274 . . . . . $1.25

BLAST-OFF FLIGHT PAK

$24.35 VALUE SAVE $8.36

Ideal Engine Assortment For The Active Rocketeer. Features 24 of The Most Popular Estes Model Rocket Engines, plus Solar Igniters and Parachute Recovery Wadding. Priced At An Excellent Savings. Includes Six Each 1/2A6-2, A8-3, B6-4, and C6-5 High Performance Model Rocket Engines, One Pkg. Parachute Recovery Wadding, and 30 Solar Igniters.

No. 1672 ONLY $15.99

WIN $75.00 IN FREE MERCHANDISE!!
ENTER THE DESIGN OF THE MONTH CONTEST

Have an idea for an original design? Enter our Design of the Month competition today. Your design could be published in an issue of Model Rocket News. Simply follow the rules below.

1. All entries become the property of Estes Industries and cannot be returned.
2. Employees of Estes Industries and members of their immediate families are not eligible.
3. Any type of model rocketry design can be entered (rockets, boost-gliders, launching or recovery devices, etc.).
4. Designs should be new, original, and different, but they also need to be workable. The goal is to develop something new that other rocketeers can build and use successfully, too.
5. Entries will be judged on practicality, originality, neatness, completeness, and clarity. All plans must be flight tested and proven.
6. Your design entry should include a parts list and any instructions or diagrams you feel would be helpful.
7. Please do not send the actual model as it cannot be returned.
8. Photos of entries are greatly appreciated, but are not required.
9. You may send as many entries as you like.
10. New contest every month.
11. All designs reaching Estes Industries during the calendar month will be entered in that month's competition. (Date of receipt, not postmark, will determine the month in which a design will be entered.)
12. If two or more exceptional entries are received during any month, the judges may, at their discretion, make identical first-place awards or give additional honorable mentions.
13. Designs should be sent to the Design of the Month, c/o MRN Editor, Estes Industries, Inc., Penrose, CO 81240. However, all plans sent to us which are not specifically addressed to another contest or department will be automatically placed in the Design of the Month Competition.
14. Each month the designer of the winning entry will receive a certificate entitling them to $75.00 in merchandise and an award certificate suitable for framing. Award winners will be notified by mail. **GOOD LUCK!!!**

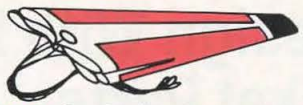
NAR/HIAA Model Rocketry Safety Code

1. **Construction**—My model rockets will be made of lightweight materials such as paper, wood, plastic and rubber, without any metal as structural parts.
2. **Engines**—I will use only pre-loaded factory-made model rocket engines in the manner recommended by the manufacturer. I will not change in any way nor attempt to reload these engines.
3. **Recovery**—I will always use a recovery system in my rockets that will return them safely to the ground so that they may be flown again.
4. **Weight Limits**—My model rocket will weigh no more than 453 grams (16 oz.) at lift-off and the engine will contain no more than 113 grams (4 oz.) of propellant.
5. **Stability**—I will check the stability of my model rockets before their first flight, except when launching models of already proven stability.
6. **Launching System**—The system I use to launch my model rockets must be remotely controlled and electrically operated, and will contain a switch that will return to "off" when released. I will remain at least 15 feet from any rocket that is being launched.
7. **Launch Safety**—I will not let anyone approach a model rocket on a launcher until I have made sure that either the safety interlock key has been removed or the battery has been disconnected from my launcher.
8. **Flying Conditions**—I will not launch my model rockets in high winds, near buildings, power lines, tall trees, low flying aircraft, or under any conditions which might be dangerous to people or property.
9. **Launch Area**—My model rockets will always be launched from a cleared area, free of any easy to burn materials, and I will only use non-flammable recovery wadding in my rockets.
10. **Jet Deflector**—My launcher will have a jet deflector device to prevent the engine exhaust from hitting the ground directly.
11. **Launch Rod**—To prevent accidental eye injury I will always place the launcher so the end of the rod is above eye level or cap the end of the rod with my hand when approaching it. I will never place my head or body over the launching rod. When my launcher is not in use I will always store it so that the launch rod is not in an upright position.
12. **Power Lines**—I will never attempt to recover my rocket from power lines or other dangerous places.
13. **Launch Targets & Angle**—I will not launch rockets so their flight path will carry them against targets on the ground, and will never use an explosive warhead nor a payload that is intended to be flammable. My launching device will always be pointed within 30 degrees of vertical.
14. **Pre-Launch Test**—When conducting research activities with unproven designs or methods, I will, when possible, determine their reliability through pre-launch tests. I will conduct launchings of unproven designs in complete isolation from persons not participating in the actual launching.

As a member of the Estes Model Rocketry Program, I promise to faithfully follow all rules of safe conduct as established in the above code.

Signature _____

Recovery Supplies



Prod. No.	Description	Parachute Diameter	Net. Weight	Price Each
2262	PK-10	10 inches	.035 oz.	$1.15
2264	PK-12	12 inches	.078 oz.	$1.25
2267	PK-18	18 inches	.144 oz.	$1.30
2271	PK-24	24 inches	.298 oz.	$1.50

PARACHUTE KITS: Get the best in parachute recovery! Two-color printed plastic 'chutes give maximum visibility with easy-trak design. Lightweight, durable and easily folded. These 'chutes are only 0.0075" thick, allowing the most material to be packed into the least body space. Each kit comes complete with 'chute material, tape discs, and shroud lines. Ship. Wt. 2 oz.

SHOCK CORD: Specify width when ordering. Ship. Wt. 1 oz.
1/8" wide: Net Wt. 0.039 oz.
No. 2276 ..... $.60
1/4" wide: Net Wt. 0.078 oz.
No. 2277 ..... $.65

Also 36" long for greater stretch on those larger birds. 1/8" wide: Net Wt. 0.078 oz.
No. 85744 ..... $.75

TAPE DISCS: Fasten shroud lines to plastic parachutes or streamers with these 3/4" dia. pressure sensitive Tape Discs. In sheets of 6 discs. Ship Wt. 1 oz.
No. 2294
4 sheets of 6 ..... $1.20

STREAMER MATERIAL: Bright orange, flame-resistant crepe paper streamers. In 7-1/2 foot lengths, enough for two to eight streamers. Specify size when ordering. Ship. Wt. 1 oz. 1" wide: Net Wt. 0.092 oz.
No. 2341 ..... $2.00
2" wide: Net Wt. 0.184 oz.
No. 2343 ..... $2.25

SCREW EYES: Specify size when ordering. Ship. Wt. for 6 eyes, 1 oz.
LARGE EYE:
1" long: 0.04 oz.
No. 2280 ..... 6 for $1.00
SMALL EYE:
3/4" long: 0.03 oz.
No. 2279 ..... 6 for $.95
EXTRA SMALL EYE:
5/8" long: 0.01 oz.
No. 2281 ..... 6 for $.90

SHROUD LINES: Build reliable, durable, custom parachutes with this strong, hard surface shroud line cord. Comes in 70 yard spools. Ship. Wt. 5 oz.
No. 2340 ..... $1.10

TAPE STRIPS: For top strength, low bulk and low weight, fasten shroud lines with these 1/4" x 3/4" tape strips, in sheets of 12 strips. Ship. Wt. 1 oz.
No. 38412
6 sheets of 12 ..... $1.30

SNAP SWIVELS: For quick changes and reduced tangling in your recovery systems, use these tiny 1" long snap swivels. Net Wt. 0.01 oz. Ship. Wt. for 12 swivels, 1 oz.
No. 2292 ..... 12 for $1.60

TECHNICAL REPORTS
SPECIAL PUBLICATIONS

Rocket Stability – TR-1
No. 84721 ..... $.60

Multi-Staging – TR-2
No. 84722 ..... $.60

Altitude Tracking – TR-3
No. 84723 ..... $.60

Rear Engine Boost Gliders – TR-4
No. 84724 ..... $.60

Cluster Techniques – TR-6
No. 84726 ..... $.60

Front Engine Boost Gliders – TR-7
No. 84727 ..... $.60

Model Rocketry Study Guide – TR-8
No. 84728 ..... $1.10

Altitude Prediction Charts – TR-10
No. 84730 ..... $1.60

Aerodynamic Drag of Model Rockets – TR-11
No. 84731 ..... $1.60

Model Rocket Engines – TN-1
No. 84700 ..... $.60

Model Rocket Engine Performance – TN-2
No. 84701 ..... $.60

Elementary Mathematics of Model Rocket Flight – TN-5
No. 84704 ..... $.60

COUNTDOWN: Mathematics and Model Rocketry
No. 2855 ..... $1.50

Recovery Techniques – TN-6
No. 84705 ..... $.60

ALPHA Mini Book of Model Rocketry
No. 901022 ..... $.25

Model Rocket Launch Systems
No. 2811 ..... $.60

Estes Guide For Aerospace Clubs
No. 2817 ..... $.85

Space Age Technology
No. 2813 ..... $1.60
A "Teacher's" Manual (No. 2823) is available to educators for $1.60.

Estes Model Rocket Contest Guide
No. 2815 ..... $.85

The Laws of Motion and Model Rocketry
No. 2821 ..... $.45

Aerospace Education and Model Rocketry
No. 2816 ..... $1.60
(Single copies free to educators requesting it on school stationery.)

The Alpha Book of Model Rocketry
No. 2820 ..... $.85

Industrial Arts Teachers Manual for Model Rocketry
No. 2810 ..... $1.10

Model Rocketry Technical Manual
No. 2819 ..... $.45

Building A Wind Tunnel – TR-5
No. 84725 ..... $.60

Is That Parachute Too Big? – TN-3
No. 84702 ..... $.60

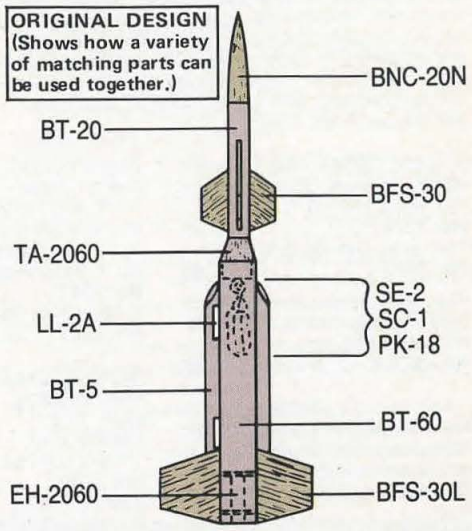
RECROC – Recreational Program
No. 2826 ..... $1.35

Camp Leader's Model Rocketry Manual
No. 2822 ..... $1.10

Build Your Own Design With Estes Quality Model Rocket Parts

Once you have constructed several model rocket kits and have become familiar with the basic Estes Technical Reports you will no doubt have a variety of ideas for unique designs of your own. In order to select the proper parts for your original design it is important for you to understand our system of parts description numbers.

Nearly all matching Estes parts have the same series description number. Those which do not feature an additional explanation as to where they can be used. Normally, parts listing the same series description number will be interchangeable with each other. For instance, a #20 body tube (BT-20) would mate with a #20A balsa nose cone (BNC-20A), a #20C payload section (PS-20C), or a #20B engine block (EB-20B). Further, a #2060 tube adapter (TA-2060) will adapt a BT-20 to a BT-60, and a #5055 centering ring (AR-5055) will center a BT-50 within a BT-55. By using balsa or paper adapters almost any combination of parts can be joined together. For ordering, be sure to use both the product number and the series description number (name).



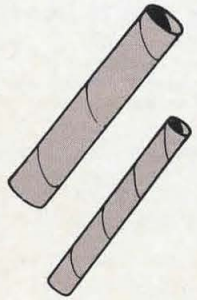
Model Rocket Parts

Fin Stock

Top quality balsa sheeting for making fins for model rockets. For maximum strength, grain of wood should follow the leading edge of fin.

Prod. No.	Description	Price	Dimensions (In Inches)	Weight in Oz. Net.	Ship.	Major Use
3164	BFS-20	3 for $1.15	1/16x3x9	.130	4	High Performance
3166	BFS-20L	3 for $1.35	1/16x3x12	.173	6	High Performance
3168	BFS-30	3 for $1.20	3/32x3x9	.150	4	Sport Models
3170	BFS-30L	3 for $1.40	3/32x3x12	.200	6	Sport Models
3172	BFS-40	3 for $1.35	1/8x3x9	.200	4	Cluster Rockets
3174	BFS-40L	3 for $1.40	1/8x3x12	.265	6	Glider Wings

Body Tubes



Prod. No.	Description	Price Each	Length	Inside Diameter	Outside Diameter	Wall Thickness	Weight in Oz. Net.	Ship.
Spiral-Wound Paper Tube, for nose sections and strap-on payloads.								
3070	**BT-5**	**$1.10**	18"	0.515"	0.541"	0.013"	.219	11
Spiral-Wound Paper Tube, for competition and sport models.								
3072	**BT-20**	**$1.20**	18"	0.710"	0.736"	0.013"	.288	11
Spiral-Wound Paper Tube, for sport and high performance payload models.								
3073	**BT-50**	**$1.30**	18"	0.950"	0.976"	0.013"	.378	11
Spiral-Wound Paper Tube, for sport and demonstration models.								
3074	**BT-55**	**$1.55**	18"	1.283"	1.325"	0.021"	.672	11
Spiral-Wound Paper Tube, for sport and demonstration models.								
3075	**BT-60**	**$1.65**	18"	1.595"	1.637"	0.021"	.960	11
Spiral-Wound Paper Tube, for monster models and tail rings.								
3076	**BT-70**	**$2.10**	17.5"	2.175"	2.217"	0.021"	1.300	14
Spiral-Wound Paper Tube, for giant-scale models.								
30438	**BT-101**	**$2.65**	16.5"	3.896"	3.938"	0.021"	1.974	16

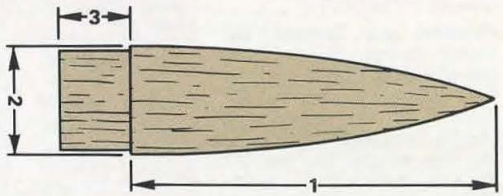
Engine Blocks

Prod. No.	Description	Price 3 for	Outside Dia.	Inside Dia.	Length	Fits	Weight in Oz. Net.	Ship.
3131	**EB-20A**	**$.95**	.708"	.65"	1/4"	BT-20	.009	1

Nose Cones

Nose cone dimensions listed in columns 1, 2, and 3.

In "Description" column BNC stands for balsa nose cone and PNC for plastic nose cone.



Shape	No.	Prod. No.	Description	Price Each	Dimensions 1	2	3	Average Weight	Ship. Wt.
1 2 3 4	1	8002	**BNC-5V**	**$1.10**	3/4"	0.541"	1/4"	0.013 oz.	1 oz.
	2	8000	**BNC-5E**	**$1.10**	1-3/8"	0.541"	1/4"	0.020 oz.	1 oz.
	3	8001	**BNC-5S**	**$1.10**	1-1/2"	0.541"	1/4"	0.016 oz.	1 oz.
	4	8003	**BNC-5W**	**$1.30**	2-7/8"	0.541"	1/4"	0.039 oz.	2 oz.
5 6 7 8	5	8004	**BNC-20A**	**$1.00**	13/16"	0.736"	1/4"	0.03 oz.	1 oz.
	6	8005	**BNC-20B**	**$1.20**	1-11/16"	0.736"	5/16"	0.05 oz.	1 oz.
	7	8007	**BNC-20R**	**$1.30**	2-3/4"	0.736"	3/8"	0.07 oz.	2 oz.
	8	8022	**PNC-20N**	**$1.40**	2-3/4"	0.736"	1/2"	0.12 oz.	2 oz.
9 10 11 12	9	8008	**BNC-50J**	**$1.30**	1-3/8"	0.976"	1/2"	0.08 oz.	4 oz.
	10	8009	**BNC-50K**	**$1.45**	2-3/4"	0.976"	1/2"	0.13 oz.	4 oz.
	10	71028	**PNC-50KA**	**$1.20**	2-3/4"	0.976"	1/2"	0.13 oz.	4 oz.
	11	8010	**BNC-50X**	**$1.55**	3-1/4"	0.976"	1/2"	0.15 oz.	4 oz.
	12	8011	**BNC-50Y**	**$1.80**	4-3/8"	0.976"	3/8"	0.16 oz.	6 oz.
	12	71009	**PNC-50Y**	**$1.60**	4-3/8"	0.976"	3/8"	0.16 oz.	6 oz.
13 14 15 16	13	8012	**BNC-55AA**	**$1.70**	3-1/8"	1.325"	1/2"	0.15 oz.	4 oz.
	14	8014	**BNC-55F**	**$2.00**	3-7/8"	1.325"	1/2"	0.19 oz.	4 oz.
	15	8023	**PNC-55AC**	**$2.10**	5-3/8"	1.325"	3/8"	0.32 oz.	6 oz.
	16	71075	**PNC-55AO**	**$2.05**	5"	1.325"	3/4"	0.43 oz.	4 oz.
17 18	17	8024	**PNC-60MS**	**$1.80**	3-1/8"	1.637"	5/8"	0.39 oz.	4 oz.
	18	8021	**PNC-60AH**	**$3.00**	6-5/8"	1.637"	7/8"	1.00 oz.	6 oz.
19	19	8019	**BNC-70AJ**	**$3.35**	4-1/4"	2.217"	1"	0.85 oz.	6 oz.

Engine Mounts

Use Estes high performance engine mounts for your original designs. All engine mounts feature easy - to - assemble instructions and lightweight components.

Engine Type	Prod. No.	Description	Price	Fits	Net Weight Oz.	Ship. Wt. Oz.
For Series I & II Engines—A, B, & C type 0.69" x 2.75"	3150	**EH-2050**	**$1.25**	BT-50	0.1	5
	3151	**EH-2055**	**$1.25**	BT-55	0.14	5
	3152	**EH-2060**	**$1.25**	BT-60	0.17	5
For Series IV Engines—D type 0.945" x 2.75"	3155	**EM-5063**	**$1.55**	Saturn V	0.4	5
For T Series Mini-Engines .5" x 1.75"	3153	**EM-520**	**$1.20**	BT-20	0.09	5
Special Purpose Quick-Change Conversion Mount —From Series IV Engines to Series I & II Engines	3154	**EM-2050**	**$1.30**	BT-50	0.19	5

ESTES
A DAMON COMPANY

Balsa Adapters

Adapters give flexibility for rocket design. Switch from one size body tube to another for payload capsules, parachute compartments, propulsion sections, etc. Any adapter can be hollowed to make a passage for ejection gases. All adapters have at least 1/2" mating surface on each end.

Prod. No.	Description	Price Each	Mates Tubes	Length	Taper Length	Weight in Oz. Net.	Ship.
8031	TA-520	$1.20	BT-5 to BT-20	1.75"	0.75"	0.04	1
8032	TA-550	$1.30	BT-5 to BT-50	2.2"	1.0"	0.06	4
8041	TA-2050	$1.10	BT-20 to BT-50	3.0"	2.0"	0.15	4
8033	TA-2055	$1.45	BT-20 to BT-55	2.5"	1.5"	0.22	4
8034	TA-2060	$2.10	BT-20 to BT-60	3.0"	2.0"	0.20	4
8035	TA-5055	$2.10	BT-50 to BT-55	2.0"	1.0"	0.60	4
8036	TA-5060	$2.50	BT-50 to BT-60	3.0"	2.0"	0.23	4
8038	TA-5560	$2.60	BT-55 to BT-60	2.2"	1.0"	0.25	4
8039	TA-6070	$2.35	BT-60 to BT-70	2.7"	1.5"	0.65	4

Stage Coupler

For multi-staging, joining body tubes, positioning adapter tubes, etc. Make perfect guides for cutting body tubes and sanding cut edges of body tubes, too. Ship. Wt. for all is 3 oz. each.

Prod. No.	Description	Price Each	Outside Diameter	Inside Diameter	Length	Fits	Average Weight
3050	JT-5C	$ .75	0.513"	0.455"	3/4"	BT-5	.020 oz.
3051	JT-20C	$ .75	0.708"	0.650"	3/4"	BT-20	.027 oz.
3052	JT-50C	$ .80	0.949"	0.920"	1"	BT-50	.051 oz.
3053	JT-55C	$ .80	1.28"	1.25"	1.3"	BT-55	.088 oz.
3054	JT-60C	$ .80	1.59"	1.55"	1-1/2"	BT-60	.124 oz.
3055	JT-70A	$1.15	2.175"	2.115"	1-1/4"	BT-70	.140 oz.

Nose Blocks

Use these top quality featherweight balsa nose blocks in payload sections and anywhere else a solid bulkhead is required. Precision turned for exact fit in body tubes.

Prod. No.	Description	Price Each	Outside Diameter	Length	Fits	Weight in Oz. Net	Ship.
70152	NB-20	$ .90	0.710"	3/4"	BT-20	.014	1
70158	NB-50	$1.00	0.950"	1"	BT-50	.040	4
70162	NB-55	$1.00	1.283"	1-1/4"	BT-55	.115	4
70164	NB-60	$1.15	1.595"	1-1/2"	BT-60	.190	4

Construction Supplies

Centering Rings

AR-5055 CENTERING RINGS: For centering a BT-50 body tube within a BT-55. Extra strong for "D" engine mounts. Weight 0.062 oz. each. Ship. Wt. 2 oz.
No. 3102 . . . . . 4 for $1.20

AR-2050 CENTERING RINGS: For centering a BT-20 body tube within a BT-50. Greater strength makes for use with high thrust engines. Weight per pair 0.285 oz. Ship. Wt. 2 oz.
No. 3100 . . . . . 10 for $1.50

Launch Lugs

LAUNCH LUGS: Super-strength laminated launch lugs feature mylar plastic core for durability, paper outer layer for easy gluing. Inside diameter 5/32" fits 1/8" launch rod. Ship. Wt. 1 oz.
1-1/4" long
No. 2321 . . . . . 12 for $1.25
2-3/8" long
No. 2322 . . . . . 10 for $1.40
MAXI-ROD LAUNCH LUG: 2" long, fits 3/16" diameter launch rod.
No. 2328 . . . . . 4 for $1.10

Dowels

DOWELS: Extra-strong, lightweight seasoned maple dowels. Ship. Wt. 5 oz.
1/8" x 18"
No. 32056 . . . . . 8 for $1.00
1/12" x 12"
No. 32058 . . . . . 8 for $1.00

Engine Holders

ENGINE HOLDER: Flat spring steel design gives easy installation and low drag. Recommended for sport and demonstration models. For Regular and "D" engines. Ship. Wt. 1 oz.
No. 3140 . . . . . 3 for $1.50
For Mini-Engines, Ship. Wt. 1 oz.
No. 3142 . . . . . 3 for $1.25

Paper Adapters

RA-2050 RINGS: 20 rings for centering and mounting BT-20 in BT-50. Ship. Wt. 2 oz.
No. 3110 . . . . . 20 for $1.10

RA-2055 RINGS: 10 rings for centering and mounting BT-20 in BT-55. Ship. Wt. 2 oz.
No. 3111 . . . . . 10 for $1.15

RA-2060 RINGS: 10 rings for centering and mounting BT-20 in BT-60. Ship. Wt. 2 oz.
No. 3113 . . . . . 10 for $1.20

MULTI-PURPOSE SET: Includes a total of 20 rings for positioning BT-5 in BT-20; BT-5, BT-20, BT-30 in BT-50; and BT-5, BT-20 and BT-50 in BT-60. Also three universal tapered shrouds and instructions. Ship. Wt. 2 oz.
No. 8030 . . . . . $1.30

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Damon Corporation
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Printed by The A. B. Hirschfeld Press, Denver, Colorado U.S.A.

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Slim line, futuristically designed launch controller uses revolutionary new 6 volt, Polaroid ® Polapulse™ P100 battery. Super thin, space age battery allows for perfect hand-held styling and delivers consistent ignition performance for more than 150 launchings.

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Ship. Wt.: 12 oz.

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Only $9.95

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Estes products distributed in Canada by: HOBBY INDUSTRIES. 24 Ronson Drive, Rexdale, Ontario M9W 1B4

PN-2856P

– IMPORTANT INFORMATION –
Please Read!

ATTENTION PARENTS, TEACHERS, AND ROCKETEERS

Please do not be alarmed by the placement of the label illustrated below on shipping cartons containing model rocket engines. When used as directed, Model Rocket Engines "ARE SAFE", and have produced an excellent Safety Record. This label is technically required by law. Please note that "Flammable Solid" label is required only for the transportation of the product and that model rocket engines are considered less of a hazard than model airplane fuel or aerosol paints.

DON'T MISS A MAILING

In order for you to receive all Estes mailings be sure to order at least $5.00 worth of merchandise every 6 months. This will assure that your name will be retained on our active mailing list.

SHIPPING INFORMATION

The following information is provided in accordance with the requirements set forth in Trade Regulation Rule 435, promulgated by the Federal Trade Commission, effective February 2, 1976

We normally ship within 72 hours of receipt of your order. On occasion, a product may be temporarily out of stock, in which case we will notify you within 30 days that there will be a delay. Your order will then be filled as soon as possible, but in no event later than 90 days from receipt of your order.

A SPECIAL MESSAGE TO ESTES CUSTOMERS

From time to time Estes Industries makes the names and addresses of its customers available to other companies who produce other products you may be interested in. This means that you may be receiving advertising and sales literature from these companies in your mail. If you do not wish your name and address to be used in this manner, please contact Estes Industries Customer Service Department, Penrose, Colorado 81240

ATTENTION CALIFORNIA RESIDENTS

To receive model rocket engines by mail order in California, you must be aware of the following conditions and fulfill several simple requirements.

1. To receive 1/4A through C type engines you must be at least 14 years of age and have a "Statement of Age Certificate" on file with Estes Industries.
2. To receive D engines you must be at least 18 years of age and have a "Statement of Age Certificate" on file with Estes Industries.
3. If you are not old enough to receive the type of model rocket engines you wish, please have one of your parents send your order in for you. Remember they must also have a "Statement of Age Certificate" on file with Estes Industries.
4. You need to file a "Statement of Age Certificate" only once. Fill out and send in the certificate below now to assure the rapid handling of all your future orders.
5. To launch, an individual must secure authorization (either written or verbal) from the fire authority having jurisdiction over the area he plans to use as a launch site.
6. No additional consumer permit to purchase or use model rocket engines is required.

Copies of the State of California Model Rocket Regulations may be obtained upon request by writing either of the following:

Estes Industries
Customer Service Department
Penrose, Colorado 81240

or

Chief Albert E. Hole
California State Fire Marshal
1215 "O" Street, Room A101
Sacramento, California 95814

CALIFORNIA STATEMENT OF AGE CERTIFICATE

Name _____ **Date** _____

Address _____ **City** _____

State _____ **Zip** _____ **Phone (** _____ **)** _____

In order to receive model rocket engines in California, please check one of the following boxes and sign.

☐ **(A) I am 14 years of age, but not yet 18.**

☐ **(B) I am 18 years of age or older.** **Rocketeer Signature** _____

Parent Signature _____

(Must be signed if box "A" is checked)

NOTE: Certificate need be filed only once.

Send to: **Estes Industries**
Order Processing Dept.
Penrose, Colorado 81240

or include with your next order.

GOOD NEWS FOR OREGON RESIDENTS

Effective November 1, 1981, the Oregon State Fire Marshal will no longer require permits to launch model rockets. Previous Oregon model rocketry regulations requiring permits to launch model rockets, Administrative Rules #837-12-250 through #837-12-270, have been repealed. Local jurisdictions may have ordinances in effect which do regulate model rockets within their jurisdiction. It is suggested that individuals check with the fire authority having jurisdiction in the area where they plan to launch, to be sure that local regulations do not require a permit. For additional information contact: Office of State Fire Marshal, Department of Commerce, 103 Labor & Industries Building, Salem, OR 97310.

ATTENTION WASHINGTON RESIDENTS

On September 10, 1979, new Washington State Model Rocketry Regulations went into effect. Under the new Washington Administrative Code 212.20 there is NO age or licensing requirement to purchase or use model rocket engines. Please check with your local authorities for approved launch sites. For a copy of the new regulations write: Estes Industries Customer Service Dept., Penrose, Colorado 81240 or State of Washington, Office of the State Fire Marshal, Insurance Building, Olympia, Washington 98504.

ATTENTION MASSACHUSETTS AND RHODE ISLAND RESIDENTS

According to your state model rocketry regulations, you are required to obtain a permit from your local fire or safety authority in order to purchase and use model rocket engines.

As soon as you receive your permit, please send us a copy to keep on permanent file. All orders for engines must be placed in the name of the permit holder. For a copy of Massachusetts regulations write for: FPR Fire Prevention Regulation #15, State Book Store, State House, Room 116, Boston, Massachusetts 02133. (Include 30¢ for copy and postage.) In Rhode Island, write: Rhode Island State Fire Marshal, 12 Humbert Street, North Providence, Rhode Island 02911 c/o William McVey, Chief of Technical Services.

ATTENTION NEW JERSEY RESIDENTS

In accordance with Safety Regulation No. 24 of the New Jersey Department of Labor and Industry, Estes Industries can sell engines only to holders of valid permits. These permits are issued to any adult who will assume full responsibility for the safe handling and use of model rocket engines, including the purchase of them.

To obtain a permit first write to the State of New Jersey, Department of Labor and Industry, Bureau of Engineering and Safety, Box 709, Trenton, New Jersey 08625, and request an application form for a model rocket engine permit. The fee for a permit is two dollars. DO NOT SEND THE PAYMENT until you return the completed application form to the Department of Labor and Industry. You will receive more complete information on the procedures to follow when you receive the application form.

As soon as you receive your permit, please send us a copy to keep on permanent file.

If you are not yet an adult yourself, your parents, teachers, etc. can obtain permits and can purchase engines for you.

ATTENTION CANADIAN RESIDENTS

Please send all orders for Estes products to: Hobby Industries, 24 Ronson Drive, Rexdale, Ontario, M9W 1B4. As prices are different in Canada you should request a Canadian Price List and Catalog from Hobby Industries.

ATTENTION FOREIGN ORDERS

Due to restrictive International Air Mail Regulations, we are not able to ship our model rocket engines to any international or APO address.

DEAR MODEL ROCKETEER,

Please remember that modelers such as yourself must obey the laws and regulations of your city, county, and state if model rocketry is to advance and current restrictions are to eventually be lifted. Only thru maintaining an excellent safety record can this take place. We feel we have the safest, most complete educational model rocketry program available, however, occasionally antiquated fireworks laws and misinformed individuals interpret model rocketry as requiring strict regulations, which it does not need or deserve.

We at Estes Industries promise to continue our efforts to inform the misinformed and to separate model rocketry from the misconception that it should be treated like fireworks, which it is not. Your compliance with existing laws will assist us in pushing model rocketry ahead for less restriction in the future. Also, remember that experimenting with home-made propellants is far too dangerous to attempt. Stay within the law—stay alive.

Sincerely,
ESTES INDUSTRIES

Vern Estes

Vern Estes

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NAR

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NATIONAL ASSOCIATION OF ROCKETRY
182 MADISON DRIVE, ELIZABETH, PA 15037

This flyer is provided courtesy of your model rocket manufacturer. Application with Dept. E-82 membership fee and all information requests should be sent directly to the NAR.

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* Does not include Model Rocketeer Magazine.

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DATE OF BIRTH: Mo._____ **Day**_____**Yr.**_____ **AMOUNT ENCLOSED $**_____

NAME _____ **DATE** _____

ADDRESS_____ **CITY**_____**STATE**_____**ZIP** _____

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I pledge to obey the NAR/HIAA Safety Code

Signature _____

All memberships are for twelve months from the date of application. The exception is 6-Month Junior Membership which is for six months from the date of application.
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PENROSE, CO 81240 USA

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ORDER DATE
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Please Print Name And Address Below Unless It Appears On Label. Correct Address On Label If Necessary.

400N
387
386
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Your Name_____

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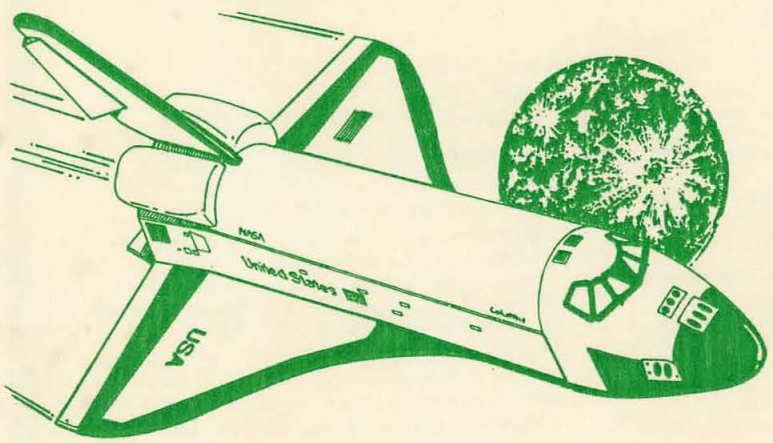

ESTES INDUSTRIES

"Model Rocket Capitol of the World"

PENROSE, CO. 81240 USA

HOW TO ORDER — FOLLOW THESE EASY STEPS FOR BEST SERVICE

This order form replaces all previous order forms. Please be sure that you use the correct and full catalog number for each item when you order. All prices are subject to change without notice. WHEN SENDING ORDER BE SURE TO GIVE ZIP CODE IN YOUR ADDRESS.

POSTAGE

Estes Industries ships all retail orders POST-PAID in the U.S. by regular land mail or UPS.

PAYMENT ON ORDER

Full payment must accompany all orders. Please send all remittances by either check or money order, both for your protection and our convenience. If you do send currency, be sure your envelope has sufficient postage, is properly sealed, and is addressed correctly to assure delivery. Coins should be attached to a separate sheet of paper, not to the order blank. Use a single strip of masking tape to hold the coins in place. Avoid the mailing of coins, as they are easily lost in the mail. We cannot assume responsibility for the loss of coins, currency, or orders in the mail. Remember to include sufficient funds with your order. For your protection, we do not ship orders C.O.D. Proper attention to these details will result in speedier service for you.

IMPORTANT

Estes model rocketry products are recommended for ages 10 to adult. Adult supervision is suggested for those under 12 years of age when flying model rockets.

Your order may, for various reasons, have to be shipped in more than one package. If all of your order does not come at the same time, please be patient and give the balance of the order time to arrive.

NOTE: All foreign orders require additional postage. Please write for more information on postage and mailing restrictions.

PRIORITY MAIL (Air Mail) SERVICE

While Estes Industries specializes in fast service, sometimes extra speed is necessary. The Post Office offers a service called Priority Mail which gives packages and parcels the fastest handling and transportation possible. PRIORITY MAIL CANNOT INCLUDE MODEL ROCKET ENGINES, AS ORDERS CONTAINING ENGINES CAN ONLY BE SHIPPED BY PARCEL POST OR UPS AT THIS TIME.

For other items on which you desire extra rapid delivery, additional postage may be included for Priority Mail. Shipping weights are given on all items. Total up the shipping weights on the items you are ordering, then find the amount to allow for extra postage on the chart below. When your order is processed you will be charged only for the difference between regular parcel post and priority mail - any excess will be refunded.

WEIGHT (UP TO BUT NOT OVER)	10 oz. to 1 lb.	2 lbs.	3 lbs.	4 lbs.
Allow →	$ .80	$1.13	$1.51	$1.93

5 lbs.	6 lbs.	7 lbs.	8 lbs.	9 lbs.	10 lbs.
$2.48	$3.13	$3.73	$4.33	$4.93	$5.53

For orders 9 ounces or less, send 9¢ per ounce.

"Estes is an equal opportunity employer."

903,028C

FULL ONE YEAR WARRANTY

ESTES — A DAMON COMPANY

Your Estes product is warranted against defects in materials or workmanship for one year from the date of the original purchase. Any Estes product which, because of a manufacturing mistake, malfunctions or proves to be defective within the one-year warranty period will be repaired or replaced, at Estes' option and at no charge to you, provided it is returned to Estes with proof of purchase.

This warranty does not cover incidental or consequential damage including injury or damage to persons or property caused by the use, abuse, misuse, failure to comply with operating instructions or improper storage of the warranted product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

For repair or replacement under this warranty, please return the defective part of your Estes product with proof of purchase to: Estes Industries, Customer Service Department, Penrose, Colorado 81240.

TEAR HERE AND INSERT IN ENVELOPE

Thank you for ordering

TEAR HERE AND INSERT IN ENVELOPE

FOLD HERE AND SEAL

HAVE YOU ORDERED EVERYTHING YOU NEED? IS YOUR MONEY ORDER OR CHECK ENCLOSED? DID YOU CHECK YOUR MAILING ADDRESS AND ZIP? DID YOU FILL IN ALL CREDIT CARD INFORMATION?

–HELP US TO SERVE YOU BETTER–

Your comments will assist us in providing you with better service and even more exciting products.

1. What types of scale models would you like to see Estes produce? _____

2. Do you prefer ☐Large or ☐Small size models?

3. Do you think Estes kits are generally ☐Easy, ☐Average or ☐Difficult to assemble considering their recommended skill level?

4. Are Estes kit instructions easy to follow? ☐Yes ☐No

5. Would you prefer more plastic parts for simpler assembly and better detail? ☐Yes ☐No

6. What Skill Level of kits do you prefer to build?
☐1 ☐2 ☐3 ☐4 ☐5

7. My three favorite types of model rockets are
☐Single Stage ☐Scale Model ☐Boost Glider
☐Sport Flier ☐Futuristic Design ☐Maxi-Brute
☐Mini-Brute ☐Multi-Stager
☐"D" Powered ☐Payload

8. I became interested in model rocketry because of:
☐a friend ☐film ☐gift
☐school ☐magazine ad ☐hobby shop
☐rocket club ☐saw a launch ☐department store
☐article ☐comic book
☐TV
☐other _____

9. My favorite type of scale model is:
☐Military Scale ☐NASA Scale ☐Sounding Scale

10. What product other than model rockets would you like to see Estes produce:
☐Electric RC Cars/ ☐Kits ☐Pre-Assembled
☐Powered Boats/ ☐Kits ☐Pre-Assembled
☐RC Airplanes/ ☐Kits ☐Pre-Assembled
☐U-Control Airplanes/ ☐Kits ☐Pre-Assembled
☐Solar Kits ☐Construction Sets
☐Slot Racing ☐HO Scale ☐1/32nd. Scale
☐Other _____

11. Age ____ Grade ____

12. ☐Male ☐Female

— THANK YOU FOR YOUR ASSISTANCE —

Send a Friend a Catalog!

☐ Please rush a "New" ESTES Model Rocketry Catalog to:
Friend's Name _____
STREET _____
CITY _____
STATE _____ ZIP _____ Dept. 50N

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Friend's Name _____
STREET _____
CITY _____
STATE _____ ZIP _____ Dept. 50N